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## Transport Bill Timetable

THE Committee Stage of the Transport Bill in the House of Commons having been completed before Christmas with the aid of the guillotine, the Report Stage follows next, and presumably an early opportunity will be taken of dealing with it as soon as possible after Parliament reassembles next Tuesday. Three days are to be allotted, which is one more than the Government originally intended, though the Opposition asked for four in all. The recommendations of the Business Committee as to the date for this stage are expected next week. Thereafter one day is to be given to the Third Reading, which will be followed by debate in the House of Lords. It is clear that the Government means to push the Bill through with the smallest delay. Mr. Harry Crookshank, Leader of the House of Commons, has said that the Bill cannot become law till the Spring; but even if it goes on the Statute Book in April or May, the hot pace maintained during the Committee Stage will have to be kept up, to which the Government may by now see objections. The Bill emerged from the Committee Stage with few important amendments. The most notable of these was perhaps that compelling the Minister to make regulations to preserve the pension rights earned by those losing their employment as a consequence of passage of the Bill; it was non-controversial, as were some Government amendments relating to coastal shipping

rates. The Government did not further elucidate its intentions as to the future organisation of the railways; it appears, however, that the docks formerly under railway ownership unfortunately are not to be returned to railway management, and that the Government does not intend to "give away" the British Transport Commission assets in provincial road passenger transport. The Opposition has said it will return to the charge on many clauses, and the Minister has promised further discussion of application of the road transport levy, amongst other matters. Three days in the Report Stage is but little for all this. The Bill gives ample scope for a debate in the Lords, whose judgment, relative detachment from purely political considerations and, in some cases, experience in transport matters should have full play.

## Personal Assets

IN their messages to the railway staff through the pages of the regional editions of the *British Railways Magazine*, the Chairman of the Railway Executive and the Chief Regional Officers have wished success to all in their efforts during what promises to be a strenuous year. Their words and the sentiments behind them underline a fact that is easily overlooked when attention is so often directed to matters on a less personal plane. Without the contributions of individuals in keenness, good humour, and courtesy to all who use the railways, the best equipment can do little to promote the prestige of railway transport in the eyes of the public. When circumstances prevent innovations and improvements on the scale that could be desired, these qualities are more than ever indispensable. Assets are not only inanimate objects enumerated in a balance sheet, but the sum of individual efforts directed to a common end. In general, the New Year messages have been brief, but Mr. C. P. Hopkins has enlarged on the special responsibilities of the Southern Region in view of the influx of Coronation visitors from the Continent and overseas that will be added to its normal heavy passenger traffic.

## Achievements Since Nationalisation

A REMINDER of some of the work put in on British Railways since nationalisation on January 1, 1948, is given in the current issue of the *British Railways Magazine* in the leading article entitled "Five Years' Hard Labour"; it is summarised on another page. Under the pen-name "The Man on the Line," the author marshals arguments to show how much has been done to increase efficiency and achieve economies through unification and standardisation of design or practice in civil and mechanical engineering, operating, stores, printing and stationery, and shipping activities. The new standard track is said to be stronger and cheaper to maintain than prewar patterns; the standard locomotives and rolling stock allow of more economical usage; millions of pounds have been saved in unifying the mechanical engineering shops on a national basis and in standardisation in stores purchase; and unification in operating by inter-Regional and simplified working has made it possible to reduce the number of goods depots, marshalling yards, and motive power depots. Failure in some respects is admitted, and the great scope for future improvements. Five years is a short stretch in the life of a railway, and when the strain of wartime working and lack of maintenance is considered the achievement in that period must be acknowledged.

## Developing South India

A METRE-GAUGE link between Cochin and Quilon in Travancore, building of which was inaugurated in December by Mr. Jawaharlal Nehru, Prime Minister of India, as recorded elsewhere in this issue, will develop a populous region of South India and improve access to Cochin Harbour. Despite the vigorous policy pursued by the South Indian Railway between the wars of building new lines to develop its territory and converting to broad gauge certain metre-gauge lines to give through running

with the Indian broad-gauge system, the coastal region of Travancore and Cochin hitherto has been relatively sparsely served by railways, much transport in the "backwater" districts being by inland water craft. The new line will serve to feed the well-equipped port of Cochin; it was the South Indian that helped to create the modern port by converting to 5-ft. 6-in. gauge the metre-gauge feeder line that linked it with the S.I.R. broad-gauge system, and the forward policy of the S.I.R. is being continued by its successor, the Southern Railway, under the aegis of the Indian Railway Board.

### Palletisation Progress

**O**BSTACLES to widespread and early adoption of palletisation were shown by the tests at Battersea Wharf last week, described on another page. The advantages, also shown, are so obvious that they may tend to overshadow the disadvantages in an industry such as transport, eager to experiment with and profit by new techniques. The basic difficulty is the dimensions of the pallet in relation to those of the rail and road vehicles and perhaps also of ships' holds, and of packages, and to those required by the transport user for storage and other reasons. Nevertheless progress is being made. The fighting services have palletised on a large scale, though largely for their own domestic transport and storage purposes. British Railways are developing *inter alia* the palletised transport of soft fruit by wire baskets to prevent crushing. That of fish presents difficulties in the congestion at ports when sample boxes must be withdrawn, and in fish liquor; and that of newspapers, also under examination, in the absence of platform space at passenger stations and in sorting. No doubt other goods and parcels traffics offer similar scope. Of the equipment demonstrated last week, the most novel feature is the experimental wagon with detachable sides for two-tier stacking of pallets.

### Ductile Cast Iron

**I**N the last two decades, some of the greatest advances in the physical properties of ferrous metals have been in the production of high duty cast iron. While malleable cast iron has replaced cast steel for many purposes, high duty cast iron equally has taken the place of malleable, and in the latest form is showing a ductility that falls little short of that of mild steel. This ductile iron is now being produced in the United States with a tensile breaking strength, as cast, of 36 to over 49 tons per sq. in., an elongation ranging from 20 per cent with the lower tensile down to 4 per cent with the upper, and a Brinell hardness of 150 to 260. Its chemical composition is 3.45 to 3.80 per cent carbon, 2.2 to 3.0 per cent silicon, 0.20 to 0.35 per cent manganese, 0.06 to 0.08 per cent phosphorus, 0.60 to 0.90 per cent nickel, and 0.06 to 0.08 per cent magnesium. The fluidity of molten ductile iron permits its use in castings of which the sections are too thin for castings in steel, and its remarkable physical properties make it possible to substitute iron castings for steel forgings, as, for example, diesel engine crankshafts. The magnesium content is largely responsible for giving the iron properties similar to those of steel while still retaining its characteristic machinability; these can be varied by heat treatment, and the iron can also be welded.

### An Unusual Realignment

**T**HE Omaha-Ogden section of the Union Pacific Railroad has a ruling gradient of 1 in 122 except in the 33-mile length from Cheyenne to Dale Creek over the 8,000-ft. Black Hills Summit at Sherman. In this length the gradient against westbound trains is 1 in 65, and the line is double. To obviate the gradient which is an obstacle to traffic, a new westbound line is being constructed by an entirely new route, described elsewhere in this issue. Unlike most realignments, this one is nine miles longer than the existing route and seems to have much more curvature. These handicaps of a larger and more curved route are evidently greatly outweighed by the easier gradient permitting more economical and faster haulage. Curiously, the 42-

mile new line has no bridges, but there are many Armco-and-concrete culverts, 23 of them as large as 15 ft. in dia., some intended for by-road underbridges. The largest of the culverts are over 500 ft. long, as there are great fills up to 164 ft. high. In all, some 7,000,000 cu. yd. of earthwork are involved, much of it being rock.

### Welded Rails and the Passenger

**T**HE long welded rails on the Munich-Augsburg main line mentioned in our issue of July 11 have now been extended to well over 10 miles in one length from Pasing, the only break of any kind being at points, of which there are very few. The novelty of this track is not only the long continuous welded section but the combination of welded rails with concrete sleepers. On a visit to Germany in October we were told that the maintenance work required was still of the same small order as recorded in our July 11 issue. Further sections are to be found on several main and secondary-main lines in Western Germany, for example in 3- to 4-mile lengths between Dusseldorf and Duisburg, and near Buchloe, on the Kempten-Munich route. The effect on noise and vibration is very noticeable. Conversation in a compartment on the Kempten line at the ruling speed of 40 to 45 m.p.h. could be conducted in ordinary quiet tones without the slightest raising of voice. On the Pasing length at speeds of 68 to 75 m.p.h. travel in the driving position of one of the newest *schnelltriebwagen* was as smooth and quiet as in a *de luxe* coach, though we were above the leading bogie of the train. These long welded lengths may have advantages in maintenance. They certainly have attractions for passengers.

### "Family Fares" in the U.S.A.

**L**AST summer, as noted in the Overseas columns of our August 22 issue, thirteen railways in the eastern United States joined with the New York Central and the Chesapeake & Ohio (which had the plan under trial for some weeks previously) in introducing reduced fares for families or parties travelling in "coach" or third class accommodation for distances not less than 100 miles. Given the payment of not less than three adult fares, which themselves were reduced 25 per cent below the ordinary rates, any children of under 12 years of age accompanying the party could travel free. Reports show that, as far as figures are available to date, and notwithstanding the adverse effects on travel of the prolonged steel strike, the plan has been successful. The Chesapeake & Ohio sold some 650 family tickets and 100 group tickets totalling in value \$14,650 between June 25 and July 25. From June 25 to July 11 the New York Central sold 4,466 family tickets covering that number of adults and 808 half-fare children, while 5,375 younger children were carried free. On these and on other railways it has been verified that a number of families and parties that availed themselves of these facilities would have used other forms of transport had the economy fares not been in force. The general feeling is that the plan has stimulated interest in railway travel, but that a longer time is needed to decide whether it is economically justified.

### German Passenger Stock

**T**HE mainstay of the German carriage and wagon industry over the last few years has been the running contracts for repairs placed by the Federal Railways, mainly to bring damaged vehicles up to scratch and to re-furbish vehicles standing long neglected. Very many of the vehicles are to be considered almost as new, judging from the work and material put into them. These contracts now are slackening off; but the Bundesbahn has been able, within its limited financial resources, to place orders for new wagons, particularly of special types and also for new passenger coaches, sleeping cars, and postal vans, though strictly speaking the last-named are the property of the German Post Office. Passenger carriages built recently have incorporated the so-called Minden-

Deutz bogie, a very simple bolster type with shock absorbers, evolved through collaboration by the Eisenbahn-zentralamt and Westwaggon—hence the name. The principles guiding the design of the complete coaches were riding and interior comfort of a standard high enough to attract passengers from road transport; good route availability over the Bundesbahn and other systems; simple constructional details; cheap to build; and easy to maintain. In the result, the bodies are of all-welded lightweight construction but without the use of special sections or pressings. Standard types, about 86½ ft. long over buffers, seat 84 or 92 third class or 30 second and 38 third class passengers.

### Fireless Locomotive Development

**K**NOwn for 70 years or more in industrial service where shunting requirements are only intermittent, though beginning its life with applications to street cars, the fireless locomotive in recent years has been built only in very small numbers, partly because of the advance in diesel locomotives and the practicability of their use where fire risk is one of the major considerations. As a rule, the charging pressure has varied according to the plant available on site; but all steam passed through a reducing valve set to about 50 lb. per sq. in., at which steam was admitted to the cylinders. When pressure in the reservoir had fallen to 50 lb. it was time to go back to the charging station. A new principle has been evolved recently by the Austrian, Gilli, to overcome the defects of this low traffic capacity and to make steam at normal locomotive pressures, say 200/230 lb., available in the cylinders, and to provide very high pressure in the storage steam without having to install a very high-pressure charging plant. This is done by having a normal reservoir charged at about 175 lb. but having steam superheated to 400° C. This steam is led through coils in a water-filled h.p. intermediate container, gives up a regulated amount of its heat to the water, and so creates a high pressure in the container, from which steam goes to the 200/230 lb. reducing valve before the cylinders.

### Evolution of Transport Techniques

**W**ELL-ESTABLISHED methods and equipment for railway transport may sometimes induce a disinclination, if nothing stronger, to interpret the true significance of developments in other spheres. An enlightening and timely review of the present situation was given by Monsieur Louis Armand, General Manager of the French National Railways, in a paper on "Fundamental Techniques in Transport and their Recent Evolution" presented to the Institute of Transport in London on January 12. Monsieur Armand visited London specially to attend the meeting, at which his paper was read by Mr. R. H. Hacker. The author referred to such recent competitors as pipelines and inland water transport of petroleum, mentioning that already pipeline traffic in the U.S.A. was a fifth of that on the railways. Such systems could not replace the railways, but deprived them of the remunerative, regular traffic which used to compensate the heavy charges of public service. Even more serious for undertakings with public transport responsibilities was the rise of individual low-power transport. This increased the peak traffic problem on the railways, which played so important a part in operating costs, for in bad weather or at times of holiday exodus passengers returned to the public carriers. For example, at the Christmas season the Gare de Lyon in Paris despatched 63 relief trains in three days, or 15 more than in the previous year. Over the same period 420,000 travellers left Paris by rail; no doubt many of them possessed cars, but preferred, for reasons of convenience, to leave to the railway all the anxiety of their transport in time of fog, rain, or snow.

The speaker thought that the loss by the professional carrier of the right to transport, while retaining the obligation to transport, would be the cause of increasing financial difficulties for all countries. He discussed the application

to the railways of the doctrine of productivity, which in their case meant the mass production not of equipment, but of ton-miles or passenger-miles. Intensive use of diesel or electric locomotives resulted in efficiency worthy of the twentieth century. The S.N.C.F. did not consider that the average speeds achieved between Paris and Lyons were the most valuable contribution made by electric traction, but rather the fact that the number of miles covered per locomotive on this arterial line had been doubled. For example one locomotive last August had run more than 25,000 miles hauling trains. There would be true productivity, also, in the working by electric traction of 1,800-ton trains between the coalfields of Northern France and Lorraine by the Valenciennes-Thionville line.

In present circumstances the problem of capital expenditure had become of the greatest importance; it was basically affected by the incidence of accelerated technical evolution. Today there was a natural disinclination to engage in costly enterprises involving installations which were slow to wear out but at any time during their life might be rendered prematurely out of date by new technical advances. Therefore, when a transport problem could be solved in two different ways, he thought it best to adopt the one involving the least important fixed installations. To improve the efficiency of good stations, it was better to adopt diesel-electric locomotives capable of working 20 hours out of 24, rather than to increase the length or number of reception lines and marshalling sidings. Acting on the same principles, the French Railways had modified their system of electrification. In future, and particular for electrification of the line from Valenciennes to Thionville, they would use industrial frequency current at 25,000 volts. This high voltage made it possible to reduce the cross-section of the overhead lines and the size of the supports and their foundations. The 60-kV. transmission line disappeared because the supply was taken direct from the grid system, while rectifier substations were replaced by ordinary transformers at a spacing of about 38 miles. Altogether the costs of the fixed installations were reduced by about half. They now had available various types of powerful locomotives to operate on an industrial frequency current which would satisfy every operational requirement. In choosing electrification to increase productivity, they had been guided by the fact that most of their own coal could be used more efficiently at thermal power stations than elsewhere, while France was rich in hydro-electric energy, and the railway, working continuously day and night, was an excellent consumer of electricity. In these circumstances, it had become a duty to pursue the electrification of main lines. Monsieur Armand's remarks on future electrification did not imply that the 50-cycle system would be used everywhere. In extending the Paris-Lyons scheme towards Marseilles, for example, it would be desirable to continue at 1,500 V. d.c. so that existing locomotives could work over the additional mileage and so raise their present productivity to still higher levels. In the north and east of the country, however, the complexity of the railway network would entail very extensive fixed installations so that reduction of these costs would be of the first importance.

If accelerated technical development was not to aggravate the lack of balance between various modes of transport, it would be necessary to achieve some form of co-ordination through an organisation responsible for directing development such as the British Transport Commission. As a foundation for effective action, it would be necessary to undertake a long and arduous study of the actual working costs of the various types of transport. If methods of co-ordination so far had not proved very effective, might it not be that this was because they did not take account of technical progress but were limited to regulating an existing situation? Today it was better to devote capital to conversion of equipment and reallocation of staff rather than to maintaining out-of-date techniques.

Mr. John Elliot, Chairman of the Railway Executive, in proposing a vote of thanks, said that Monsieur Armand by his competence as an administrator and by his genius for teamwork had made the French National Railways one of the greatest railway systems in the world. His paper



was of particular importance to this country because of the Transport Bill now going through Parliament. Among its many lessons for us was its treatment of the problem of competition. There were politicians and industrialists who believed that the magic word "competition" would solve all our problems. Others favoured a rigid monopoly, but Monsieur Armand had pointed to a middle way. We must work out what part each form of transport should play at the least cost to the nation.

Mr. David Blee, Member of the Railway Executive, seconding the motion, said he found in the paper Monsieur Armand's basic conception of the future. We should study working costs to find the true economic position and further the channels of technical progress by clear-cut investment programmes. Experience would show that meeting competition was largely a matter of courage.

Mr. C. P. Hopkins, Chief Regional Officer, Southern Region, said he supported the vote with particular pleasure because of the close link between the Southern and at least two of the Regions controlled by Monsieur Armand. There was complete frankness and amity in the discussion of common problems. He had given them the advantage at Regional level of his wide experience and considerable sagacity, and the same could be said of the regional officers who took their example from Monsieur Armand.

### The C.P.R. during 1952

**D**ESPITE the high level of business and industrial activity in Canada during 1952, the financial results of the railway operations of the Canadian Pacific Railway Company in the year again left much to be desired. The unprecedented flow into Canada in the first few months of 1952 of investment capital from the United States and abroad, the tense international situation calling for the diversion of a substantial part of the country's productive effort to defence needs, and other factors combined to increase the cost of materials and wages to the extent that net earnings on railway operations were still inadequate to provide a fair return on the large investment in railway property.

The record 1952 Western grain harvest coupled with a carry over of part of the 1951 crop, brisk development of natural resources such as petroleum, minerals, and forest products, the increasing output of farms, fisheries, and manufacturing plants, and unabated activity in the construction trades made substantially heavier demands on the Canadian railway facilities. Nevertheless, as Mr. W. A. Mather, President of the Canadian Pacific Railway, makes clear in his year-end review, the Canadian Pacific and other railways were compelled to seek financial relief from the burden of mounting costs by further applications to the Board of Transport Commissioners for increases in freight rates.

Recognising the urgency of establishing a sound financial basis assuring both a fair return to the company's shareholders and allowing the necessary capital for the development and expansion of its transport facilities to be obtained, the Canadian Pacific applied in July to the Board of Transport Commissioners to establish a "rate-base rate-of-return" formula. Under this the company would be given the opportunity of earning up to 6½ per cent on the net capital investment in railway property. Such an approach, Mr. Mather believes, offers the only effective solution to a financial problem of growing concern not only to the railways of Canada but to the country at large. The Canadian Pacific has estimated that gross capital expenditure of \$475,000,000 will be needed over the next five years, entailing an annual outlay of approximately \$95,000,000.

The C.P.R., confident that an equitable solution ultimately would be achieved, and mindful of its responsibility to meet the growing transport demands of an expanding economy, went ahead in 1952 with a large programme of improvement and development. A fleet of the most powerful type of diesel-electric locomotives used in Canada replaced steam locomotives between Calgary

and Revelstoke. In 1953, diesel-electric locomotives will also replace steam locomotives between Crowsnest, on the Alberta border, and Hope, British Columbia, where the southern route joins the main line. A diesel repair shop at Nelson is being built. Among 5,006 new freight units ordered in 1952 were six specially-designed well wagons for conveying electric transformers and other equipment of extraordinary weight and size. These wagons are new in Canada and the largest of their type constructed. Orders for 40 new steel suburban coaches have been placed and delivery is expected in 1953.

In an effort to improve the already good safety record another specially-equipped coach for instructing employees in rules and safety practices was placed in service recently. In 1952 the C.P.R. in Maine and Vermont, U.S.A., won the Harriman Award for the best safety record of railways whose locomotive miles range from one to ten million. A teletype system of communication, already in force between Windsor, Ontario, and Boston, was extended to link all principal points between Fort William and Vancouver.

Canadian Pacific Steamships operating revenues for the year, still adversely affected by increasing costs of materials and wage rates, were more seriously hit by a marked falling-off in ocean freight rates, which reached their lowest point for several years. Passenger carryings continued to be heavy during most of the year. To attract cargo to the *Empress of Scotland*, it was decided to make Montreal the terminal for the summer season. Nine voyages were completed and the results have justified that decision. *Beaverbrae* continued its service in immigrant and freight traffic, with heavy carryings during the twelve months under review. On September 1, the company re-entered trans-Pacific trade with the vessels *Maplecove* and *Mapledell*, which previously operated in the North Atlantic. These vessels now provide a monthly freight service between north-west Canadian and American ports, Japan, Hong Kong and the Philippines. Both are manned by Canadian officers and crew.

In view of the advancing age of the *Empress of Canada* and *Empress of France*, a replacement vessel for passenger service in the North Atlantic was ordered from the Fairfield Shipbuilding & Engineering Company, of Govan, Scotland. It is expected that the new ship, which will be 22,500 gross tons, will be commissioned in time for the St. Lawrence summer season of 1956.

To keep abreast of the rapid development of the Pacific Coast the company has built and placed in service in the past few years on the Vancouver-Victoria-Seattle route the *Princess Marguerite* and *Princess Patricia*, each licensed to carry 2,000 day passengers. The new *Princess of Nanaimo*, which can carry 130 motorcars as well as a heavy passenger load was placed in service last year between Vancouver and Nanaimo. The expansion taking place in the central and northern part of Vancouver Island requires other vessels to augment the service performed by this ship in the peak summer months. Plans are being prepared for the construction of a self-propelled ship to carry wagons between Vancouver and Nanaimo. It will be designed to carry passengers, motorcars and lorries when not conveying wagons.

Canadian Pacific Air Lines entered into negotiations to operate between Vancouver and Mexico, Peru, and Brazil. It is expected this service will be inaugurated in 1953. Two de Havilland "Comet" jet airliners nearing completion in England will make Canadian Pacific Airlines the first North American air line to use this type of aircraft. They will be put into service early in 1953 between Australia and New Zealand, and Hawaii by way of Fiji, cutting the present flying time by half. Douglas "DC-6" airliners will be used between Vancouver and Hawaii, and between Vancouver and the Orient. Because of the development at Kitimat, the air service between Vancouver and Prince Rupert was extended to Terrace, the airport for Kitimat. Large-scale iron-ore development on the Quebec-Labrador border required increased service on the Montreal-Quebec-Seven Islands air route and mining activities in north-western Quebec and north-eastern



Ontario called for extension of the Montreal-Val d'Or-Rouyn service to include a daily round trip to Toronto via Earlton. Throughout the year, the C.P.R. Airlines continued to provide service for the Government between Vancouver and Tokyo in connection with its participation in the Korean War.

### British Transport Commission Traffic Receipts

THE chief interest of the advance figures for Period 13 of 1952, the four weeks to December 28, is in the comparison afforded between the aggregates for the 52 weeks of 1951 and 1952. The last four-week periods of the two years do not correspond exactly; that of 1951 ended on December 30, which with the incidence of Christmas and Boxing Days vitiates true comparison. The short Christmas holiday in 1951 probably caused British Railways passenger receipts to fall below those of the preceding year, as London Transport did not suffer in the same way. Last Christmas the extra day or two seems to have allowed of more holiday travel, though whether in longer distance or a greater number of passenger journeys remains to be seen in the analysis which will appear in due course.

	Four weeks to December 28		Incr. or decr.	Aggregate for 52 weeks		Incr. or decr.
	1952	1951		1952	1951	
<b>British Railways—</b>	£000	£000	£000	£000	£000	£000
Passengers .....	8,106	7,875	+ 231	109,677	106,708	+ 2,969
Parcels, etc., by passenger train .....	2,867	2,468	+ 399	35,731	32,939	+ 2,792
Merchandise & livestock .....	7,668	7,330	+ 338	104,045	99,355	+ 4,690
Minerals .....	3,286	2,949	+ 337	41,939	36,596	+ 5,343
Coal & coke .....	7,889	6,766	+ 1,123	100,985	90,996	+ 9,989
	29,816	27,388	+ 2,428	392,377	366,594	+ 25,783
<b>British Road Services</b> .....	5,480	5,766	- 286	76,234	77,565	- 1,331
<b>Road Passenger Transport:</b>						
Provincial & Scottish—						
Buses, coaches & trolley-buses .....	3,200	3,004	+ 196	47,457	43,301	+ 4,156
<b>London Transport—</b>						
Railways .....	1,419	1,225	+ 194	17,957	16,054	+ 1,903
Buses & coaches .....	2,734	2,533	+ 201	39,012	33,654	+ 5,358
Trolleybuses .....	640	690	- 50	9,411	9,609	- 198
	4,793	4,448	+ 345	66,380	59,317	+ 7,063
<b>Inland Waterways—</b>						
Tolls .....	65	67	- 2	947	871	+ 76
Freight charges, etc. ....	91	89	+ 2	1,264	1,121	+ 143
	156	156	Nil	2,211	1,992	+ 219
<b>Total</b> .....	43,445	40,762	+ 2,683	584,659	548,769	+ 35,890

The advance aggregate figures for 1952 show that the total for the British Transport Commission receipts from its activities shown in this series, representing some 90 per cent of receipts from carrying activities, was some £585 million, against £549 million for 1951. British Railways total traffics were £392 against £367 million in 1951.

Despite the falling off in passenger traffic noted in the summer months and Government intervention in the application of the Passenger Charges Scheme, 1952, main-line passenger receipts for the year were up on those for the previous year, but by only 2.7 per cent. Merchandise and livestock receipts showed a total increase of only 4.7 per cent, not unexpected in view of the decline in traffics last autumn. The increases over the 1951 aggregates of 10.9 per cent for coal class and 14.6 per cent for mineral traffic are disappointing in the light of the rate increases during 1952 and of the rise in steel production; there was, however, reorientation in the trend of coal despatches largely in the form of shorter hauls to ports—in some ways a reversion to the prewar pattern of traffic; the rise in coal production was not great, only 2.4 per cent over that for 1951; and steel production figures are no true measure of the volume of mineral traffic as a whole.

The decline in traffics during the past few months made the slight overall decline in British Road Services receipts

for the year inevitable. The alterations in London Transport fares during the year render impossible any comment on the aggregate increases in Underground and bus and coach receipts. An important feature was the final withdrawal in July of London Transport tram services. The increase in the receipts of B.T.C. provincial and Scottish road passenger undertakings was only to be expected after a satisfactory year.

### PERCENTAGE VARIATION 1952 COMPARED WITH 1951

	4 weeks to December 28		52 weeks to December 28
	1952	1951	
<b>British Railways—</b>			
Passengers .....	+ 2.9	+ 2.7	
Parcels .....	+ 16.1	+ 8.4	
Merchandise & livestock .....	+ 4.6	+ 4.7	
Minerals .....	+ 11.4	+ 14.6	
Coal & coke .....	+ 16.5	+ 10.9	
<b>Total</b> .....	+ 8.8	+ 7.0	
<b>British Road Services</b> .....	- 4.9	- 1.7	
<b>Road Passenger Transport</b> .....	+ 6.5	+ 9.6	
<b>London Transport—</b>			
Railways .....	+ 15.8	+ 11.8	
Buses & coaches .....	+ 7.9	+ 15.9	
Trolleybuses .....	- 7.2	- 2.0	
<b>Total</b> .....	+ 7.7	+ 11.9	
<b>Inland Waterways</b> .....	—	+ 10.9	
<b>Aggregate</b> .....	+ 6.5	+ 6.5	

### Problems of the Steel Industry

THE first report of the Iron & Steel Consumers' Council, published as a White Paper (H.M. Stationery Office, 4d.) covers the period from the Council's appointment in July, 1951, to September 30, 1952. Membership of the Council is representative of many aspects of British industry; Sir William Palmer is Chairman, and Members include General Sir Daril Watson, Member of the Railway Executive; Mr. Robert Arbuthnot, Joint Managing Director, North British Locomotive Co. Ltd.; and Sir Harry Railing, Chairman of the General Electric Co. Ltd.

On the Iron & Steel Bill, the report records that the Council asked the Minister of Supply to consider excluding from the public supervision proposed in the Bill firms mainly outside the industry, particularly engineering firms, whose products involve rolling, casting, and forging processes. Such firms, it is stated, regard themselves as consumers of iron and steel and do not feel that supervision over these ancillary processes in their work would be useful. The Council was consulted on several occasions on the proposal to denationalise. The constitution of the Iron & Steel Board set out in the Bill, with an independent chairman and consumer representation, accords with the view the Council expressed to the Minister. On prices it was represented to the Minister that frequent changes should be avoided, especially when small. The report recalls the difficulties of supply since the outbreak of war in Korea and the gradual improvement in 1952, and expresses hopes that total supplies of steel ingots and steel for castings in 1952 would amount to 18,000,000 tons, compared with less than 16,250,000 in 1951.

For the current year the steel industry predicts a marked increase in its output of crude steel. The November issue of the British Iron & Steel Federation *Monthly Statistical Bulletin* estimates production in 1953 at 17½ million tons. If this rise in production is achieved, it will be more than time for increased allocations of steel—assuming that by that time an allocation scheme still exists—to British Railways, whose rolling stock construction programme was grievously restricted last year. The 1945 development plan now approaches completion. After seven-and-a-half years, that is by the middle of this year, the objective was an output of 15-15½ million tons a year, which now is known to have been surpassed. Instead of raising output capacity by 13 per cent, as the plan provided, the industry has raised actual production by over 26 per cent.

A second development plan to raise steel production to 20,000,000 tons a year has already been submitted to the Government. The Federation states that much of the

most expensive work has been carried out so far that further increases in output may be achieved with less capital expenditure per additional ton of production. Increased productivity of labour was an object of the plan. In melting and rolling, the main operations, output per man year is estimated to have risen by 25 per cent in 1946-52.

In a review of postwar development, the Federation recalls that the targets set in 1945 were governed broadly

by the maximum that could be undertaken by the manufacturers of plant, which has continued a limiting factor, as noted in the Productivity Report on the industry. The Federation points out that the long delivery period for boilers, turbo-blowers, and electrical equipment, for which the electricity supply programme competes, "has been largely responsible for the fact that it has taken almost four years to complete a blast furnace with its ancillary equipment."

## LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

### Culter Accident

January 8

SIR.—I have read nearly all the accident reports which have been published in *The Railway Gazette* and I confess that I am amazed and much perturbed to see that in these enlightened days such an accident is possible as that which occurred at Culter, described in your January 2 issue, in which you summarise the inquiry and report of the Inspecting Officer of Railways.

Incidentally I am sure that all railwaymen and others reading Colonel McMullen's reports feel grateful to him for the thorough and patient way in which he makes his investigations, the just decisions he arrives at, and for the sound advice he offers in the common endeavour to prevent a recurrence of accidents, too many of which are proved to be the result of negligence. May I endeavour to encourage all those of the signalling staff never to lose sight of the motto "Safety First," however late and long the hours, and never to leave the job until it is safe. In these days when responsibilities are so much divided and shared by others, it is intolerable to have several men believing a job to be "O.K." when one of those responsible knows it to be unsafe. Having so many men responsible for the "O.K." does not appear to ensure safety.

There may be something to learn from the way similar work was handled by the contracting firms of railway signal engineers when, over 60 years ago, as an apprentice I was sent out on similar and much larger jobs involving alterations to locking, and installing f.p. locks, detectors, lock-bars, wire and rod runs, and signals. On the small jobs I undertook in Ireland and Wales my gang consisted of one old fitter and a labourer with a pick and shovel. Our safety while at work on the line, was cared for by a man with a red flag, provided by the railway company. We never had any other assistance from the railway on such jobs in those days, and I was personally responsible to the railway company on behalf of my employers for the accuracy and proper working of the job when completed, and handed over to the signaller and station-master. It is obvious that in the present busier times, with many such jobs in hand all together, responsibility for the "O.K." may have to be divided, but in every case I submit there should be one responsible person who has himself examined and tested every part of the installation effected, and on whose certificate full normal working may be renewed.

At Culter, the attention of the driver and fireman, being given to the Westinghouse brake air pump instead of to where they were going certainly contributed to the accident, but in fairness to the Westinghouse Brake & Signal Co. Ltd. I submit that the recently reported falling-off in the usual splendid service of locomotive repairs and maintenance may have been the cause of that irregularity.

I am under the impression that in the majority of cases the cause of our railway accidents has been due to the failure of the human element rather than to the failure of safety appliances, rolling stock and permanent way. It therefore becomes an urgent subject for discussion and check-up with all operators, and particularly with students. I should not like to think that there is any danger that

the feeling of security in their job rightly enjoyed by railway servants leaves any loophole for a weakening in their determination to ensure safety down to the last split pin, for the trusting travelling public. I take it the cost of accidents on the railway is eventually borne by the taxpayer, but not for that reason do I urge the necessity for a better understanding of one's responsibilities.

Yours faithfully,

THOMAS E. HAYWOOD,  
Managing Director

Thomas Haywood & Sons Ltd.,  
Railway Signal Works, Coulsdon

### The Staines-Weybridge Service

January 11

SIR.—I should like to draw attention to the conditions prevailing on the Staines-Weybridge line of the Southern Region.

With some hundreds of season-ticket holders, I have to travel from Addlestone to Waterloo daily and must use this branch from Addlestone to Weybridge where a change is made to an up main line train from Woking to Waterloo. Punctuality is non-existent and it is more the exception than the rule when a train leaves Addlestone for Weybridge on time.

The normal weekday service from Addlestone to Weybridge gives approximately seven minutes waiting connection at Weybridge, which is quite reasonable, providing the branch line train runs anything like to time. The service has deteriorated so much in the last two to three years that one cannot guarantee connecting with the main line at Weybridge; passengers for London are faced with a wait at Weybridge for 25 minutes or so for the next up train—these run at intervals of 30 minutes throughout the day.

The trouble would appear to be bad regulating of the freight trains which run from Feltham marshalling yard over this section of the line to Addlestone Junction. When one is waiting for a train at Addlestone at either five min. or 35 min. past the hour, which are the normal booked departure times, it is quite usual to see a freight train approaching the station or standing in the platform, waiting acceptance by Addlestone Junction box. By the time the freight train has cleared it is too late to make connection at Weybridge.

In the Weybridge to Addlestone direction a tightening-up of the running is needed. The down trains from Waterloo are booked to arrive Weybridge at 27 or 57 min. past the hour giving a connection for Addlestone at five or 35 min. past on the branch. Again, providing the running is normal, there is ample time for the connection. There are, however, numerous instances where the down train, because of traffic delays, has not run in to Weybridge until 36 min. or six min. past the hour and the Addlestone has not been held, again causing passengers to wait about 25 min. for the next branch train.

Yours faithfully,

J. M. ARCHIBALD

28, Dudley Close, Addlestone.

## THE SCRAP HEAP

### Direct Action

Passengers irritated by delays of over three hours to suburban trains at the Dom Pedro Station, Rio de Janeiro, on January 4, began to damage the buildings. Police were called, but had to send for troops as reinforcements. Two people were killed and several injured in a fight lasting an hour.

### By Way of Kensal Green

The tenth birthday of the Ian Allan Loco-Spotter's Club and the enrolment of its 100,000th member was marked by the running on January 5 of a special train from London Bridge to Stratford, E., by way of North Dulwich, Streatham Hill, the West London line, Willesden High Level, Hampstead



Heath, and the Tottenham & Hampstead line. After the party, consisting of over 600 club members, had been conducted round Stratford Works and Shed, the train returned to Victoria via South Tottenham, Kentish Town, Farringdon and Elephant & Castle. A 2-6-2 Class "3" Fowler tank engine (No. 40034) and six former L.M.S.R. non-corridor coaches were used. The journey covered about 55 miles.

### Boneshakers

There is an increase in the number of cases of "slipped discs"—displacement of the cartilage between the bones of the spine—says Mr. E. H. Hambly, consulting orthopaedic surgeon at the Prince of Wales General Hospital, Richmond. He writes in *The Medical Press*: "This increase may be caused by the jarring of modern methods of transport such as the sudden shocks caused by cars, lorries, buses and Underground trains braking suddenly."—From the *"Evening Standard."*

### Paddington—Model Terminus (1852)

The extensive works which have been for some time past going on at the terminus of the Great Western Railway, at Paddington, are rapidly approaching towards completion. The large space available for the purpose has been fully turned to account, and the company have erected an immense extent of premises in the shape of arrival and departure sheds of a very light and handsome, although at the same time of a very substantial, character. It is understood that the company have, by the large amount of space at their disposal, been enabled to erect premises to be especially and exclusively devoted to the

departure and arrival of excursion trains, so as to be kept entirely free and distinct from the ordinary passenger traffic of this great line of railway, and, at the same time, afford the required accommodation for this new branch of railway business, and which will probably be still further increased in the ensuing summer season. . . . The accommodation for the public at this great terminus will be ample and complete, and quite in accordance with what the public have a right to expect at the metropolitan terminus of one of the principal lines of railway in the kingdom.—From *"The Times,"* December 24, 1852.

### Dining on the C.N.R.

The Canadian National Railways claim that the world's first meal service on trains was introduced in 1867 by the Great Western Railway (of Canada) between Toronto and Windsor, now part of the C.N.R.

The C.N.R. dining cars in the "Continental Limited" serve about 600 meals during the three-day run from Montreal to Vancouver. The average revenue on a 1951 basis from the cars on this train is about \$900, but the cost of the service is about \$1,265. In addition, interest on and depreciation of the cars and considerable sums on the renewal of worn-out linen and damaged utensils further increase costs. The total loss on all 196 of the company's meal service cars is some \$2,500,000 a year, not including heavy expenditure on general maintenance and on the provision of air-conditioning.

### East Lancashire Railway Arms

When the frontage of Bury Bolton Street Station was rebuilt last year two old cast-iron arms of the East Lancashire Railway had to be removed and were damaged in the process. Both have been repaired and renovated and now appear in red and gold leaf. One is being refixed in the new ticket hall at Bolton Street Station, and the other is



Renovated arms of the East Lancashire Railway

in the keeping of the Curator of the British Transport Commission.

The reconstruction work at Bolton Street Station was described in our October 10, 1952, issue.

### Fire Belle

Fire engines rushed to East Croydon Station when a telephone caller said the "Brighton Belle" was on fire there. It was a hoax.—From the *"Daily Mail."*

### Brevity Record

An example to some of our more diffuse correspondents was set by the following letter received this week:—

Dear Sir,—Why can't we have Pullman trains on all the main-line routes?

### St. Pancras

Superb over the back abasement of Kings Cross rise its eastern extremities, with a lady among the spires whose identity can scarcely be guessed at; the west end, only less majestic, overstates the middle of Euston; a massive centre tower emphasises a chief portal. As we ascend nearer, a thousand Gothic windows, reputed once to belong to hotel bedrooms, look down. We pass through. Faint as last week's cigar smoke comes the aroma of sulphur and dust, dung and damp. Although trains don't obtrude, there's one near. . . .

There are no late-comers pounding on gates, no shrieks or whistles, no dreadful Voice whispering unmentionable places. And everything is contained under one vault, open at the end to such an estuary of sunlight and steam, overhead signals, clouds, a seagull or two, a delicate gasometer clump, as Monet never envisioned on the Seine. Railway for railway's sake! . . .

Paddingtonians are owlish, Victorians flashy, Eustonites grim, Fenchurchmen frankly peculiar. The Pancratist can be recognised by a hat slightly taller than the ordinary, a withdraw look as though the world were already sighing over its Great Days of Steam, its lost lines, vanished cathedral-stations. — G. W. Stonier in *"The New Statesman."*

### Let's We Forget

How are you, diesels? It seems years Since last we heard from you, my dears; You've been so circumspect of late— No doubt you still somnambulate In your old, aromatic way, From here to there, from day to day. Well, here's the best of luck to you, 00, 01 (and, likewise, 2); As you tune up for each day's toil Let's hope you never lack for oil.

We tend to worry, on and off, About that 'orrid, 'acking cough; Hot camphorated oil, they say, Will keep most chest complaints at bay. For you're the "pin-ups," don't forget; We wouldn't like to lose you . . . yet, Or would we? Why, the other day, We heard a diesel driver say He'd sell his adjectival soul For one good, honest lump of coal!

A. B.



## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### SOUTH AFRICA

#### New Road Vehicles

Urgently-needed new vehicles have recently become available for the road motor services. In October last, twenty-eight vehicles were placed in service including eleven ten-ton goods vehicles. Two of the new ten-tonners are of the A.E.C. Mammoth type, the first to be delivered of 30 on order; they are oil driven and cost £4,820 each. All are intended for service in Natal.

#### Rails from U.S.A.

As reported in our Contracts and Tenders columns, the S.A.R. has placed large orders for rails with United States and Belgian manufacturers to the value of £4,000,000. In spite of regular supplies of rails from Iscor and occasional supplies from Europe, the shortage of rails has become progressively worse in recent months and the firm promise of delivery by a specific date was an important consideration in the placing of these orders.

### INDIA

#### Accident on Northern Railway

On December 22 a head-on collision occurred between two goods trains near Phaphaman Station, six miles from Allahabad on the Northern Railway. One was an engineering works train being shunted, the other a fast goods train from Kanpur to Allahabad, loaded with cement, salt, and potatoes. Two engine drivers and three firemen were killed and six persons were injured. The locomotives of both trains were damaged and twelve loaded wagons were destroyed.

#### Bombay Suburban Services

On January 1 the Bombay electric suburban services of the Western Railway were augmented. They had been reduced since October, 1950, because of shortage of electric power. There are now 273 trains daily. During the peak periods 9.30 to 11 a.m. and 5.15 to 7 p.m. the service interval is 5 min., at other times 15 min.

### UNITED STATES

#### A New Diesel Design

A new type of diesel locomotive in production by Fairbanks-Morse sets new standards of power in relation to length and weight. It is the 2,400-h.p. "Train Master," a unit of the Co-Co type, 66 ft. in length over couplers and 167½ tons in weight. Compared with previous 1,600-h.p. units of the Bo-Bo type, the "Train Master" imposes 11 per cent less vertical point loading on the track; the fuel capacity of 1,800 gal. is more than proportionate to the increased h.p.; and the dynamic braking

capacity of 3,000 h.p. at the rail is between 50 and 100 per cent greater.

The design provides for the installation of a steam generator with a capacity of 4,500 lb. of steam per hr., if passenger trains are to be worked, supplied from tanks of 2,400 gal. capacity. If the steam generator is not required, these tanks can be used to supplement the fuel oil supply. With a gear ratio of 68:15, the continuous tractive force at 9.2 m.p.h. is 78,750 lb., and the maximum speed is 65 m.p.h.; with a ratio of 63:15, these figures are 72,900 lb. at 9.9 m.p.h. and 70 m.p.h. maximum; and with 62:17, 63,300 lb. at 11.4 m.p.h. and 80 m.p.h. maximum. Starting tractive force with the 63:15 gear ratio is 112,500 lb., at 30 per cent adhesion.

The compactness of this unit derives in part from the use, in the power plant, of a standard Fairbanks-Morse opposed-piston engine, with twelve double-ended cylinders; with cylinders of the normal single-ended type, twin twelve-cylinder engines would be needed to develop the same power. The unit is of the type in which the power plant is housed under a narrow hood, with railed passageways, accessible from the cab, along both sides and round the ends; it is intended to be available for all types of service, passenger, freight, and shunting.

### BRAZIL

#### Imports of Railway Material

Comparing the first eight months of 1951 and 1952, the value of imports of locomotives increased this year from £1,139,800 to £3,484,500; imports of

wagons and accessories decreased from £1,097,980 to £830,460. Imports of British locomotives and wagons totalled £812,632.

Because of exchange difficulties, Brazilian foreign trade is now based largely on reciprocal agreements. Imports of railway materials are included in the following treaties, recently signed or renewed; the values are quoted in American dollars: Germany, locomotives and accessories, \$1,300,000, wagons, \$800,000; Japan, railway rolling stock \$7,000,000; France, railway material, including locomotives, \$8,000,000. The Anglo-Brazilian Agreement expired at the end of June, 1951, and has not been renewed as the British authorities considered that greater benefits would result from free commercial exchanges.

In November, 19 diesel-electric locomotives arrived in Brazil, the first consignments of two orders for 120 and 48 units placed in the U.S.A. by the Central Railway.

### ARGENTINA

#### New Diesel-Electric Locomotive

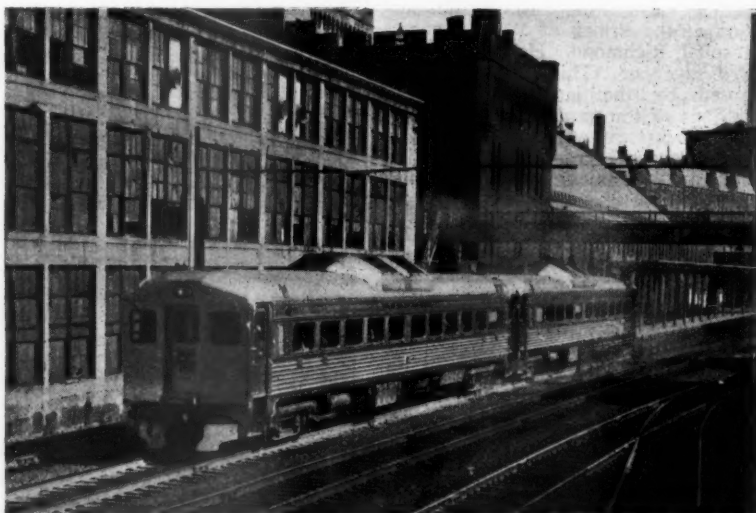
The second diesel-electric locomotive to be built entirely in Argentina—"La Argentina"—has attained a speed of 145 km.p.h. on a trial trip between Liniers and Luján.

### FRANCE

#### Reduced Passenger Fares

The S.N.C.F. budget for 1953 includes potential receipts from the State of nearly fr.21,000 million (£21,000,000) in

#### Suburban Railcar Service in America



Photo]

[M. Aubert

Budd railcar set leaving Back Bay Station at Boston, for Providence, New Haven Railroad

respect of passenger fares reduced for social or State welfare reasons. The principal payment is in respect of reduced fares for members of the Forces travelling individually and amounts to fr. 7,655 million (£7,655,000). Other items include family tickets, accounting for £3,811,000; workmen's weekly seasons £4,126,000; invalided ex-servicemen £1,298,000, and a composite payment of £2,936,000 in respect of travel by war widows, war orphans and pensioners, and on paid holidays.

#### Mechanised Shovel for Unloading

La Société Générale Maritime (S.O.G.E.M.A.) is developing the use of mechanical shovels for discharging railway wagons bulk loaded with potassium chloride, of which 100,000 tonnes a year are handled at its factory at Grande Couronne. Two mechanical shovels are used at present but two more are to be installed shortly, when it will be possible to handle 800 tonnes in an eight-hour day.

The apparatus consists of a mobile or fixed winch and a portable shovel connected to the winch by a cable. The winch is controlled by an electric motor operated by petrol or compressed air. Only one operator is required to guide the shovel towards the door of the wagon, pushing the contents of the wagon before it. A gear change device which can be worked from the shovel allows one operator to work the apparatus if required.

The apparatus used by S.O.G.E.M.A.

uses only one shovel in each wagon, but it could be arranged to work two shovels simultaneously. The present cost price of a complete unit is some fr. 1,000,000 (£1,000), but this is likely to fall if the demand for mechanical shovels increases substantially. By hand, the unloading of a 20-tonne wagon of potassium chloride requires two men working for two hours; with a mechanical shovel two men can unload the wagon in 40 minutes. The economy in unloading labour is to the benefit of the receiving firm, but there is also a distinct gain to the S.N.C.F. which obtains a quicker wagon turn-round.

### WESTERN GERMANY

#### Modernisation Programme

Speaking at Essen, Professor E. Frohne, head of the Federal Railways Committee of Management stressed that renewal of the permanent way of the Federal Railways was urgent. The Federal Railways intended to vote an additional amount for this work, but there was also the question of the supply of materials. As all money available had to be spent on permanent way maintenance there were no funds for the rebuilding of large and medium-sized bombed stations. Such reconstruction must be financed by loans granted by municipal authorities. More modern coaches are to be obtained. There are 21,000 serviceable coaches with an average age of 30 years. Some

22 per cent of the coaching stock is over age and 69 per cent has a wooden body. Improvements in comfort and riding are being made, and it is intended to improve bogies, heating, and lighting, and to upholster third class coaches. There are 264,000 wagons, many of them old. It is planned to introduce tank wagons for conveying cement, with air pressure discharging device; two-deck flat wagons for carrying cars; and refrigerator vans.

Electrification of some Western German main lines is mainly in the interest of improving operating. Other lines are to be converted from steam to diesel traction. On some, steam haulage of goods traffic will be maintained, and passenger traffic will be largely handled by railbus and diesel locomotives.

### IRELAND

#### Railcars on Tramore Line

It has been decided to use diesel railcars on the Waterford-Tramore section of C.I.E. They will be formed into two diesel units with three intermediate coaches. On the railcars interior alterations will be made to give maximum seating accommodation essential for suburban working.

During the summer a feature of the traffic on this line is the large number of perambulators carried, and the question of van accommodation is being considered. The Tramore line is some seven miles long and is isolated from the rest of the system.

### Publications Received

*Timber Progress and Desk Book for 1953.* Edited by W. E. Bruce. London: Cleaver-Hume Press Limited, 42a, South Audley Street, W.1. 8½ in. x 5½ in. 175 pp. Illustrated. Price 15s.—This publication is a mine of direct and indirect information on all aspects of timber development and commercial technology. It contains 14 authoritative articles on subjects ranging from timber trade practice, new timbers and their uses, methods of seasoning and preserving and plywood possibilities, to modern constructional techniques, the work of the Forestry Commission and other interesting matters. There is also a comprehensive bibliography on timber literature, and statistical and other information on the various relevant subjects is included. In fact, most items of special contemporary interest seem to be covered. The illustrations are excellent and show such things as the structures of various new timbers, the uses of synthetic-resin adhesives, and many aspects of plywood manufacture, as well as specimens of modern furniture and afforestation developments.

*Heavy Fan Engineering.*—A first edition of brochure No. 25 published by Keith Blackman Limited contains particulars and illustrations of a comprehensive range of products relating to

Tornado fans and blowers for industrial purposes, including multivane centrifugal exhaust-induced draught; and other types of fans; and also multi-stage turbo blowers. The brochure depicts the wide scope of Tornado products in the heavier classes of engineering, involving heavy plate construction requiring special designs and materials to satisfy stresses set up by high peripheral speeds or high temperature application.

*Southampton Docks Shipping Guide.*—The January, 1953, issue of the Southampton Docks Sailing List and Shipping Guide published by the Docks & Inland Waterways Executive contains an article on the Southern Region boat trains serving the port. There are illustrations of the smokebox plaques carried by the "Statesman" and the "Cunarder," and of a carriage roof-board of the "Normandy Express," which runs in connection with the British Railways cross-Channel service to and from Le Havre.

*Properties of Spheroidal Graphite Cast Iron.*—At the 4th International Mechanical Engineering Congress held at Stockholm, on June 4-10, 1952, a paper was delivered by Dr. A. B. Everest, Development and Research Department, Mond Nickel Co. Ltd., dealing with the engineering properties and applications

of spheroidal graphite cast iron. The paper is issued as a reprint by the firm, and deals with the development of processes for the direct foundry production of grey iron castings with free graphite in the nodular form. The paper summarises the history of developments leading to the production of spheroidal graphite cast iron and its properties. Several tables are included which give a comparison of ultimate tensile strength, yield point and elongation, and so on, between high-duty, flake graphite cast iron and spheroidal graphite cast iron, as cast, and annealed. Illustrations are also included of items manufactured of this material, which includes rolling stock roller-bearing axleboxes pinion and spur gears, and reduction gears.

*Visco Water Coolers.*—The Visco Engineering Co. Ltd. has recently issued a booklet, Visco Water Cooling No. 524. This new publication is arranged somewhat similarly to the first edition published in 1947, except that it contains illustrations together with capacities of the more recent of the firm's installations, which include typical concrete and steel shell coolers. Meteorological data are also included which give mean temperatures and relative humidity on a world-wide basis together with a series of tables, power consumption in cooling towers for various heads, loss in head of water due to friction, and so on.

## The Northern Railway, India

*Many achievements in nine months since formation*

**T**HE Northern Railway, India, was formed on April 14, 1952, by the grouping of the following railways and sections:—The Allahabad, Lucknow and Moradabad Divisions of the East Indian Railway, the Delhi and Ferozepore Divisions of the Eastern Punjab Railway, the Jodhpur Railway, the Bikaner State Railway, and the Delhi-Rewari-Fazilka section of the Western Railway. The route mileage exceeds 6,000, and with its 1,200 stations spread over seven States of Northern India, the Northern Railway serves the transport needs of the country from the holy city of Banaras (Benares) in the East to sacred Amritsar on the Northern border, and from Pathankot in the Punjab (India) to Muna Bao in Rajasthan on the India-Pakistan border.

Unlike the other five re-grouped railways, the Northern Railway was faced with the problem of building up a major railway headquarters, and that also in Delhi. When the railway was inaugurated, the headquarters offices were scattered in five different places in Delhi and New Delhi. This made the functioning of the headquarters difficult as frequent and immediate contacts were not possible between the General Manager and his principal officers. The Baroda House building, which has now fully been made available, will soon house the General Administration, Operating, Commercial, Engineering, Personnel and Finance Branches, while the Mechanical Branch will be situated in the Indian Railway Conference Association building near New Delhi Station. The Stores & Accounts Offices will remain at Timarpur, seven miles away. The Claims Offices have been moved to a central site inside the Kashmir Gate, close to the business centres of both Delhi and New Delhi and easily accessible to visitors to the capital.

Despite the shortage of accommodation and personnel and other difficulties normally expected on the formation of an organisation employing 135,000 workers, the Northern Railway has improved services to the public by arranging more convenient and direct train services connecting important places, accelerating services, rationalising rates and claims work, and giving better facilities.

### Passenger Services Improved

New train services include overnight express trains between Delhi and Lucknow, extension of the Bombay-Meerut express trains to serve Dehra Dun, two shuttle trains each way to remove congestion; and between Amritsar and Jullundur City.

Through carriages have been introduced between Amritsar and Dehra Dun by No. 6 down and No. 5 up Punjab Mails; Delhi and Lucknow via Kanpur; Delhi and Banaras via Moradabad and

Lucknow; and elsewhere. Several important passenger trains have been accelerated.

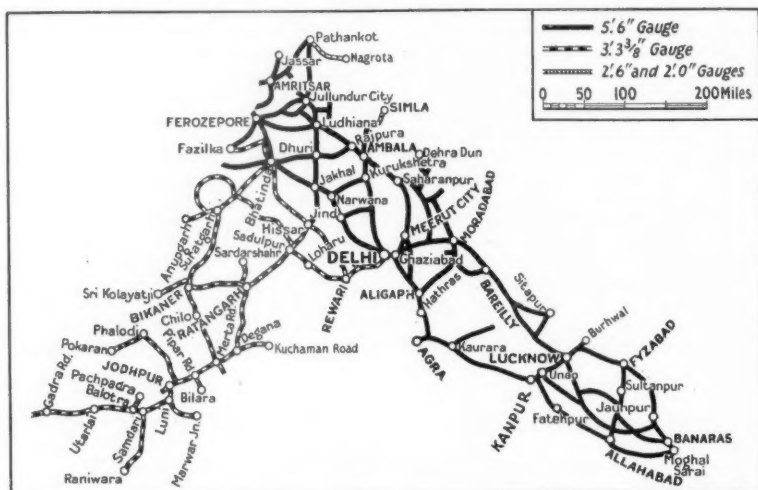
### Goods Train Operation

Unified control over wagon user over the whole of Northern India has almost eliminated delays in movement of goods; at present the loading is current over the whole of the broad gauge system and the position is even easier on the metre gauge. Movement of traffic through Northern Railway transshipment points, viz., Delhi Serai Rohilla, Bha-

enabled more engines to be made available for maintenance and this in turn is expected to improve the engine user figures.

### Facilities for Travelling Public

The following are some of the important passenger amenity works which are being carried out:—Banaras: provision of roofing over passenger platforms, retiring rooms and waiting rooms at an approximate cost of 3 lakhs; Prayag: provision of platform sheds—this important pilgrimage station attracts



*The Northern Railway, India, showing gauges*

tinda and Hissar, is free. Restrictions on bookings that remain are such as have been imposed by other railways. There has been an appreciable improvement in the flow of empties from the Northern to the Eastern Railway via Moghal Sarai, where the daily interchange has reached the record of 1906 wagons in the up direction and 1855 wagons down, against the calculated daily capacity of 1,500 each way.

### Engine User

On the broad gauge, fusion of the former Eastern Punjab Railway with the Allahabad, Lucknow and Moradabad Divisions of the East Indian permitted an improvement in the engine links, giving greater flexibility. The figure of miles per day per engine in use has recorded improvement on the former E.P. Railway section from 128.1 in February, 1952, to 131.1 in July, 1952. On the former E.I.R. section this figure rose from 95 in February to 107 in July, 1952—an improvement of 12.7 per cent.

Similarly, on the metre gauge, pooling of resources of the Bikaner and Jodhpur Divisions and changes in the links have

large gatherings every year during the Magh Mela; New Delhi: new station building at an approximate cost of 18 lakhs.

In addition, platform shelters and overbridges are being erected at a number of stations. Extensions are being made to existing sheds at 55 stations and extensions to or new footbridges constructed at 35 stations. Water coolers are being provided at Kanpur, Allahabad, Banaras, and Karnal. At less important stations, new works include widening or extending platforms and provision of additional platform sheds, waiting halls, improved lighting, approaches, and water supply.

### Workshops

Workshops at present exist at Charbagh and Alambagh in Lucknow, employing nearly 8,000 men, and at Jodhpur and Bikaner on the metre gauge employing nearly 3,000. There are, in addition, a narrow gauge workshop at Kalka employing nearly 2,000 men and smaller shops at Saharanpur, Ludhiana, Rajpura, and Ghaziabad. Construction of a carriage and wagon repair centre at Jagadhri is in progress. Efforts are



being made to make the Northern Railway self-sufficient in the repair and construction of its rolling stock requirements.

There is an extensive programme in hand for the restoration of dismantled or construction of new lines, including: Relaying the Nagrota-Jogindernagar section (35 miles); restoration of the Unnao-Madhoganj-Balamau section (65 miles); restoration of the Lucknow-Sultanpur-Zafarabad section (137 miles); and restoration of Bijnor-Chandpur Siau section (23 miles).

An independent Statistical Branch is being set up to ensure close watch over the progress of its working and strengthening of the Watch & Ward Branch. The latter has already achieved some remarkable results against pilferage.

#### Staff Welfare

As the Northern Railway has been formed by the integration of five different units, and the administration is

anxious to give a fair deal to all its employees, the question of determining the relative seniority of the staff of various categories is being considered by a Seniority Committee composed of one officer from each of the integrated units with an independent chairman. This committee is assisted by a Labour Advisory Committee, including representatives of the recognised unions of railway employees.

Construction is proceeding on staff quarters and additional hospitals, dispensaries, institutes, reading rooms, and child welfare and maternity centres. In view of the already difficult housing situation in Delhi, the problem of finding accommodation for additional staff posted at Delhi for the Northern Railway headquarters office has had to be dealt with over and above that of the quarters required at Delhi for normal requirement. Seventy-two houses were built at New Delhi in five weeks to meet this urgent requirement.

A system of hospitals and dispensaries exists for employees and their families, medical aid being free. Steps have been taken to set up under Divisional Medical Officers, a Railway Medical Organisation on the Jodhpur and Bikaner Divisions, where it did not exist before regrouping. Dispensaries are under construction at Pathankot and Ludhiana. It is also proposed to construct a hospital at New Delhi.

During its short career, the Northern Railway has brought out two publications of general interest to the staff. The first is *Northrail*, which is a newsletter circulated widely among the staff free of cost. The second is the *Northern Railway Magazine*, which enables all associated with the railway to exchange their news and opinions. Its twofold purpose is to promote understanding between the administration and the staff on the one hand and between the railway and the public on the other.

## Preventing Corrosion of Locomotive Wheels

*Paint treatment eliminates need for skimming when fitting new tyres*

**P**ROTECTIVE anti-corrosion paint is now being applied between the mating services of wheel centre and tyre to all tenders and tank locomotive coupled wheels passing through the L.M.R. shops at Horwich, Derby, and Crewe. The material used is Apexior No. 1 graphite paint, a product of British Paints Limited, which hitherto has been best known as an interior protective coating to prevent corrosion and the adhesion of hard scale in boilers and other types of steam plant.

Experiments with using the paint on wheels were carried out by the Mechanical & Electrical Engineer's

Department in 1948. A first trial, using only a quart of paint, was satisfactory although not on a large enough scale to be conclusive. Subsequently 12 gal. of Apexior No. 1 were applied to 600 tyres and wheel centres with very satisfactory results. In this experiment the left-hand tender wheels were treated and the right-hand wheels left untreated in order to provide a comparison.

In all cases the treated tyres and wheels were found to be firm, no corrosion was present, and there was no need for the wheel centres to be skimmed before fitting new tyres. In many cases the original machining

marks were still visible under the Apexior paint. On the other hand, pitting and corrosion were present in all cases on the untreated wheels, some of which had very loose tyres as a result of corrosion.

Over the past five years some 12,000 locomotive and tender wheels have been treated with Apexior No. 1 in the manner described at L.M.R. works, two coats being applied to the outer rim of the wheel centres before shrinking on. Economies in time and labour when fitting new tyres have resulted from elimination of the machining operation to remove rust.

**FIRST BRITISH PRODUCTIVITY COUNCIL SPECIALIST TEAM.**—The first specialist team to visit U.S.A. under the auspices of the British Productivity Council was due to sail in the *Queen Mary* yesterday (Thursday). The team is to examine industrial engineering. Its terms of reference cover study of how the process of constant betterment in production is influenced by budgeting and costing; administrative organisation and policy towards personnel; factory floor routine; the impact on design of manufacturing demands; and facilities for training. The visit is being made with technical assistance from the Mutual Security Agency (formerly E.C.A.), which will defray the dollar costs. Final arrangements have been made by the British Productivity Council, though the earlier negotiations were conducted by the Anglo-American Council on Productivity. The thirteen members of the team will be led by Mr. W. F. Garnham, General Works Manager of Ransomes, Sims & Jefferies Limited. Nominations were made by the Institution of Production Engineers, the Engineering & Allied Employers' National Federation, the British Institute of Manage-

ment, the Department of Scientific & Industrial Research, the Institute of Cost & Works Accountants, the Ministry of Education, and the T.U.C. The joint Secretaries will be Mr. A. G. Hayek, of Thackwell & Hayek Limited, and Mr. T. A. Prichard, of the British Productivity Council. Members include Mr. J. H. Cribb, Head of the Methods Development Section, the British Thomson-Houston Co. Ltd., and Mr. E. W. Workman, Costs & Accounts Controller, the Morgan Crucible Co. Ltd.

**MOTORCOACH AND HELICOPTER STATION ADJOINING ROME TERMINI.**—Plans for a motorcoach and helicopter station adjacent to and linked by subways with Rome-Termini Station have already been approved by the Italian State Railways. The ground floor will be a terminus for long-distance motorcoaches which will be garaged and serviced in the basements. The upper storeys will be occupied by commercial offices and an hotel with 600 bedrooms. The tenth floor, served by direct lifts, will accommodate the air station, from which stairs will run to helicopter

landing strips on the roof. It is intended to work direct helicopter services to and from the main airports, and special services for tourist traffic. A tower in the courtyard will accommodate a beacon, the helicopter landing control services, short-wave transmitter for communication with the coaches, a belvedere platform, and water tanks for the emergency supply of the whole building. The scheme is estimated to cost lire 10,000 million and will be financed by private capital.

**HIGH FREQUENCY INDUSTRIAL HEATING.**—Wickman Limited announces that its interests in industrial high-frequency heating equipment previously operated as a separate subsidiary business under the name of Applied High Frequency Limited has, from January 5, 1953, been run directly as a division of the company under the title of Wickman Limited, Applied High Frequency Division. The address of the new division is the same as that of Applied High Frequency Limited, namely Actare Works, Goldhawk Road, London, W.12.

## Aluminium Alloy Coaches

*Considerations of design with special reference to new lightweight sleeping cars for the East African Railways*

By T. W. Barrow, A.M.I.Mech.E.

**T**HE use of aluminium in railway carriage construction has grown steadily during the past 30 years, at first for interior fittings, outside sheeting and other non-stress-bearing parts of the bodies; more recently aluminium alloys have been used for stressed body structures and underframes and in some cases for bogie frames.

A few early instances are recorded of the use of light metal on the railways in Great Britain. One of the early examples was the adoption of aluminium sheeting for the entire outside covering of electric stock built for the Liverpool-Southport branch of the Lancashire & Yorkshire Railway in 1910. Two interesting examples of more recent date are the double-deck suburban coach constructed in 1932 for the Long Island Rail Road in America and the "Silver City Comet" diesel train built in Australia and put into service in 1937 by the New South Wales Government

ing properties of these alloys before going on to describe the coaches being built for the East African Railways.

Commercially pure aluminium, although only about one-third the weight of steel, is soft and ductile and, possessing only a low tensile strength, is of little structural value. However, by alloying the metal with small percentages of copper, magnesium, silicon and/or other elements, the hardness and tensile strength of the resulting alloy is considerably increased, without materially adding to its weight.

### Heat Treatment

Special methods of heat treatment have been found still further to improve the physical properties of the metal and have led to the production of aluminium alloys eminently suitable for use in the manufacture of sections for structural purposes.

Of the many different metallurgical and physical characteristics of these

under load. For an all-steel coach of conventional design, the deflection caused by the full load is usually of the order of  $\frac{1}{4}$  in.—sometimes less—and to provide a rigid body, free from vibration, this figure should not be exceeded; thus, for a light-alloy body to conform to the same standard of rigidity, the stiffness of the load-carrying girder (the body side structure) measured by its moment of inertia is required to be three times that of a similar design in steel—but even when this condition is fulfilled the use of aluminium alloy still shows a saving of about 50 per cent in weight compared with steel, on a basis of equal strength.

### Importance of Cross-Section

Of particular importance in the building of coaches is the availability of light alloy bars of constant cross section, produced by the extrusion process. By the use of sections produced in this relatively cheap and simple manner, the

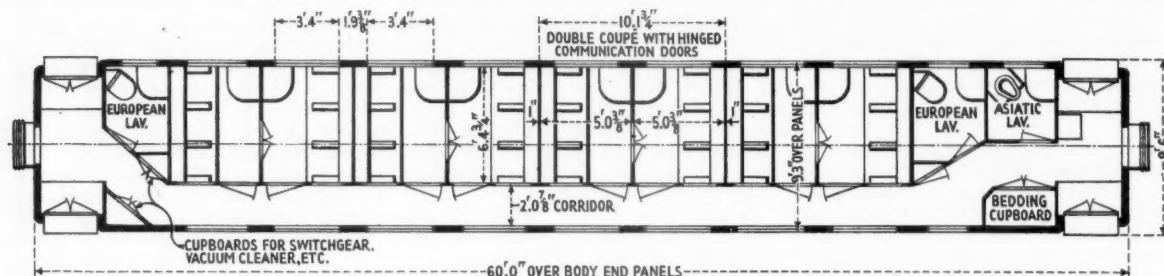


Diagram of the layout of the East African Railways aluminium alloy coaching stock

Railways; in both, aluminium alloy framing and body panelling were used.

In the United Kingdom, the first large-scale use of aluminium alloy for railway carriage construction has been made by the London Transport Executive, which placed an order in 1950 for 90 coaches for service on the surface lines of the London Underground system. This stock, which was described and illustrated in our May 4, 1951, issue, is being built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd., to the requirements of the late Mr. W. S. Graff-Baker, then Chief Mechanical Engineer (Railways) London Transport Executive. Many coaches of this order are already in service.

### Properties of Aluminium Alloys

The fabrication of railway carriage structures in aluminium alloy has become practicable only since the production of alloys comparable in many respects with mild steel, and it will be useful to mention some of the outstand-

ing properties of these alloys before going on to describe the coaches being built for the East African Railways. Commercially pure aluminium, although only about one-third the weight of steel, is soft and ductile and, possessing only a low tensile strength, is of little structural value. However, by alloying the metal with small percentages of copper, magnesium, silicon and/or other elements, the hardness and tensile strength of the resulting alloy is considerably increased, without materially adding to its weight.

The low modulus of elasticity of the aluminium alloys normally used for structural purposes—about one-third that of mild steel—enables a well-designed railway carriage, in the event of a collision or when heavily buffed, to absorb three times as much shock loading without deformation or serious damage as a steel coach of similar construction. In the design of a carriage, the low elastic modulus of light alloy gives rise to some difficulty in regard to the deflection

builders are able to incorporate structural members of the required strength and of almost any desired cross section. Modern metal-framed carriages are almost exclusively of integral construction, whereby the principal bodyside and roof members, as well as those of the underframe, all assist in carrying the loads imposed. Thus, in designing a light alloy structure of this type, the wide range of aluminium alloy extruded sections readily obtainable enable the designers to put the metal where it is needed to a greater extent and more economically than has hitherto been possible in steel carriage construction.

### Aluminium Extrusions

The main longitudinal members—the cantrails and monitor rails—in the roofs of the London Transport lightweight stock, to which reference has already been made, are particularly good examples of aluminium alloy extrusions having profiles specially designed to suit a number of purposes. In addition to their main functions—providing struc-

tural strength and attachments for the roof cross-members, outer sheeting and interior finish—the cantrails also incorporate rain gutters, and the monitor rails, besides providing anchorages for the grab poles and handgrips used by standing passengers, also form a housing for the electric cables and the fluorescent light fittings.

#### Light Alloy Stock for East Africa

On the East African Railways, the long, steep gradients and the limitations in the tractive effort of the locomotives imposed by axleload and other restrictions affect the lengths of trains and the loads which can be hauled. Increasing passenger traffic requirements caused the Administration seriously to consider new methods by which substantial reductions could be effected in the tare weight of passenger coaches while fully maintaining and, if possible, improving the present standards of comfort, safety and reliability. After considerable preliminary investigation, orders were placed by the Crown Agents for the Colonies, on behalf of the Administration, with the Metropolitan-Cammell Carriage & Wagon Co. Ltd. for a total of 34 aluminium alloy bogie first-class day and sleeping carriages—20 for the Kenya & Uganda section and 14 for the Tanganyika section, followed later by an order for one twin-unit restaurant and kitchen car, also of aluminium alloy construction, for the Kenya & Uganda section.

When considering the design of the sleeping cars, the East African Railways Authorities and the Crown Agents for the Colonies recognised the advantages to be gained by using much of the data obtained and the technique evolved by the carriage builders during the production of the London Transport coaches. Nevertheless, a large amount of entirely new development work has been found necessary in designing the sleeping cars to suit the service requirements of the railway and the climatic conditions in East Africa.

The material selected for both the exterior body sheeting and the extruded sections for the structural members of the sleeping carriages is an aluminium-magnesium-silicon alloy, marketed by Imperial Chemical Industries Limited, under the designation Kynal M.39/2. This alloy which was used for the L.T.E. light alloy coaches possesses excellent corrosion resisting properties and has an ultimate tensile strength of 20 tons per sq. in., with a  $\frac{1}{10}$  per cent proof stress of 17 tons per sq. in., which may be compared with the ultimate tensile and yield strengths—respectively about 30 and 20 tons per sq. in.—for mild steel rolled sections.

Sleeping accommodation is being provided for 16 passengers, or day-time seating for 24, in double coupés with hinged communicating doors, and access to all compartments will be by way of the straight through corridor. The bodies will be of a maximum width for metre gauge operation, and flat, vertical body side construction has been

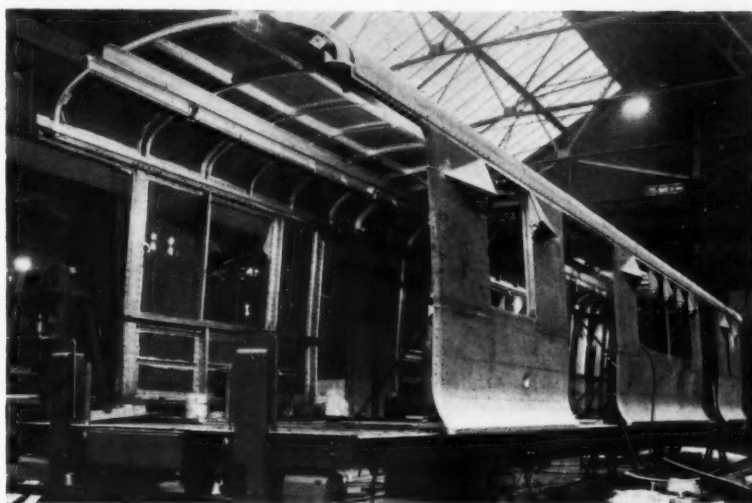
adopted. This latter feature, and the absence of doorways except at the body ends, provides maximum strength for carrying the vertical loading effectively without imposing high stresses at any point in the framing. In the light of information at present available, welded joints between stress-bearing aluminium alloy members are not favoured, and the structure, including the body paneling, will be secured together by means of cold-squeezed aluminium rivets.

To obviate the initiation of cracks which might lead to fracture, the rivet holes are drilled a little undersize, then reamed and slightly countersunk on both sides. A bold streamline effect is being obtained by the use of four substantial horizontal mouldings. The outside elevation of the vehicles will be further improved by the provision of removable fairing panels extending

damp vertical oscillations on the rebound stroke only, the springing system of the bogies being of special design to suit the lighter weight of the vehicles and the characteristics of the shock absorbers.

The carriages will be equipped with Stone's electric lighting and water raising system, the water being sterilised by the Clorocel system; drinking water is further purified by passing through filters fitted between each pair of coupés. The locations and switching arrangements of the berth and ceiling fittings in the coupés have been decided after trials carried out on a "mock-up" of the sleeping compartment produced by the builders. Electric fans will be provided in all sleeping compartments and also in the toilets.

The floors will be of light weight-type, possessing sound-deadening



*Partly constructed aluminium coach for the London Transport Executive*

downwards to within about 2 ft. of rail level. The major part of the carriage underframes will be built up from aluminium alloy sections riveted together, the centre longitudinals being continuous from end to end of the coach to assist in the transmission of the buffing and drawgear loads.

#### Headstocks and Bolsters

The underframe headstocks and bolsters will be of steel, and special precautions will be taken to inhibit corrosion due to electrolytic action between dissimilar metals where these members are attached to the aluminium alloy sections from which the main portion of the underframe is constructed. The headstocks will be arranged to take the East African Railways standard coupler equipment, brake pipe end connections and so on. The bolsters will have steel centre pivots and side bearers to suit the bogies which will be of the Timmis pattern built entirely of steel. The only notable departure from the Railway Administration's standard bogie will be the fitting of Woodhead-Monroe telescopic hydraulic shock absorbers, arranged to

qualities necessary in sleeping cars and laid on light alloy corrugated sheets of dovetail section secured to light cross members riveted to the underframe. The upper flooring, except in the toilets, will be of high density cork covered by linoleum, with a pile carpet of suitable design in each sleeping compartment. The windows in the coupés and along the corridor will be of balanced falling type, 3 ft. 4 in. wide, fitted with clear armour plate glass. One coach will be fitted, for trial purposes, with electro-hydraulically operated sliding windows. The body sides, ends and roof will be insulated by means of Fibreglass mattresses; Monarch roof ventilators will be provided.

#### Interior Decoration

Considerable attention is being given to the interior decoration and furnishing of these coaches, and the mock-up previously mentioned has been found useful in arranging a modern, hygienic finish without over-elaboration. The compartments, corridors and vestibules are being lined with plastic panels in pastel shades of green, with cream or





*Mock-up of a compartment of the East African Railways aluminium alloy rolling stock*

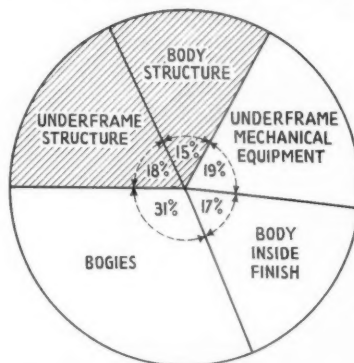
ivory ceilings. In the coupés, the upper and lower berths, seat backs and arm rests will be fitted with Dunlopillo cushions, covered with a hard-wearing Bedford cord of fawn shade, a wash basin with plastic top folding lid to serve as a table, and a trinket tray above each berth are being provided.

The outside finish painting will be carried out in East Africa, using the railway's standard cream and maroon livery, and special care will be taken in regard to the cleaning and pre-treatment of the aluminium body panelling to ensure a satisfactory bond for the priming paint and ground coats; full specifications covering these treatments have been prepared by Imperial Chemical Industries Limited, in consultation with the carriage builders and the Crown Agents for the Colonies.

#### Comparative Weights and Costs

Although the production costs of aluminium and aluminium alloys have been reduced as output has increased, the present day cost of fabricating a railway carriage structure in light alloy is appreciably higher than that of a steel coach of equal strength and rigidity. Before deciding upon the use of aluminium alloy construction it is necessary to consider fully the economic factors involved and to balance the merits of reduced weight against the

higher first cost of the vehicles. On the East African Railways, the 58 ft steel coaches at present in service, weighing from  $26\frac{1}{2}$  to  $30\frac{1}{2}$  tons according to the class of vehicle, are possibly of the lightest construction obtainable for main line stock built in steel. Nevertheless, it was estimated that a saving of at least 4 tons deadweight could be effected, and although aluminium construction is rather more costly, this considerable weight reduction, amounting to some 14 per cent of the tare weight



*Diagram showing the main sub-divisions of weight-distribution in a steel coach*

of the coach, may be considered to present the aluminium-alloy vehicle in an attractive light from the economic viewpoint.

The accompanying diagram shows the main sub-divisions of weight into which a conventionally designed steel carriage may be divided. As the structural parts of the body and underframe (shown shaded in the diagram) account for only 33 per cent of the tare weight of the vehicle, about one-third of a coach weighing, say, 30 tons, a reduction of 4 tons by the adoption of light alloy structure for the body and underframe is a notable achievement. An even greater saving in weight was effected in the London Transport coaches as the aluminium alloy bodies weigh only  $11\frac{1}{2}$  tons against  $17\frac{1}{2}$  tons for steel construction—a reduction of  $6\frac{1}{2}$  tons, or 37 per cent of the weight of the body. The total weight of the complete light alloy coach including steel bogies, traction motors and other electrical equipment is 26 tons 13 cwt., compared with 33 tons 4 cwt. for all-steel construction, a saving of 20 per cent.

#### Acknowledgments

The author wishes to thank the Crown Agents for the Colonies, the Agent-General of the New South Wales Government, the London Transport Executive, the Metropolitan-Cammell Carriage & Wagon Co. Ltd. and the Aluminium Development Association for permission to reproduce photographs and diagrams, or for information used in this article.

**GOODS WAGONS FOR EAST AFRICA.**—Of the 165 four-wheel covered wagons for the East African Railways & Harbours described in our illustrated article in our November 21 issue, only 26 were fitted with both air and vacuum brakes. This was done so that they could form part of a special train of 80 vehicles for testing the vacuum brake at high altitudes on the Kenya-Uganda section.

**LARTINGTON STATION CONVERTED TO HALT.**—The North-Eastern Region announces that it has become necessary to close the goods station and convert the passenger station at Lartington to an unstaffed halt on and from February 2. Parcels and goods traffic requiring a collection and delivery service will be dealt with at Barnard Castle from which point railhead delivery services operate. Alternative facilities for dealing with all other traffic not requiring a cartage service are available at Barnard Castle or Cotherstone stations.

**METALASTIK PRODUCTS IN FRANCE.**—The Directors of Metalastik Limited announce that a long-term manufacturing agreement has been concluded with a leading French concern to produce all Metalastik products under that trade mark for France and the French territories. This agreement operates as from January 1, 1953, and provides for close technical and commercial collaboration between the companies. As a further result, orders are being placed in this country for the special-purpose equipment required.

# Regrading the Approach to Sherman Summit, Union Pacific RR.

*New 42-mile line with 1 in 122 gradient  
replaces 33-mile westbound track with 1 in 65*



*New alignment near Dale Creek, showing 5 yd. rock shovel excavating 110 ft. cutting*

THE Union Pacific Railroad has in hand the formidable task of constructing a new 42-mile line over the 8,000-ft. Sherman Summit in Wyoming. The present summit level is 8,014 ft., approached by westbound trains over ruling gradients of 1 in 65. To reduce the severity of this gradient to 1 in 122, to conform with the route from Omaha to Ogden, it was decided to replace the 33-mile westbound track between Cheyenne and Dale Creek over the summit by an entirely new 42-mile diversion.

The existing Cheyenne—Dale Creek section is double line, and the eastbound line is to remain unaltered. Apart from

the initial six miles to Speer, which are double-line—to facilitate traffic working to Denver by the line via Speer—the new line is single.

## Extra Mileage

The new and regraded route will be nine miles longer than the old, and, judging by the map, it will involve much more curvature. These are, both of them, operating drawbacks for all time, but the present volume of westbound traffic justifies a new alignment with them and costing some £6,000,000. Motive power savings, faster speeds, and a slight reduction in rise and fall provide the justification.

The eastern 25 miles of the new line from Cheyenne are over and through gravel and clay, but most of the remainder is over solid or decomposed rock. In all, some 7,000,000 cu. yd. of earthwork are involved, of which nearly half have already been moved, though this included only 300,000 cu. yd. of rock. The deviation and regrading work is expected to be completed by August, 1953.

## Major Works

The normal side-slope of the new fills is  $1\frac{1}{2}$  to 1 and that of cuttings 1 to 1. The fills are being consolidated by rolling with the heavy earth-moving equipment.

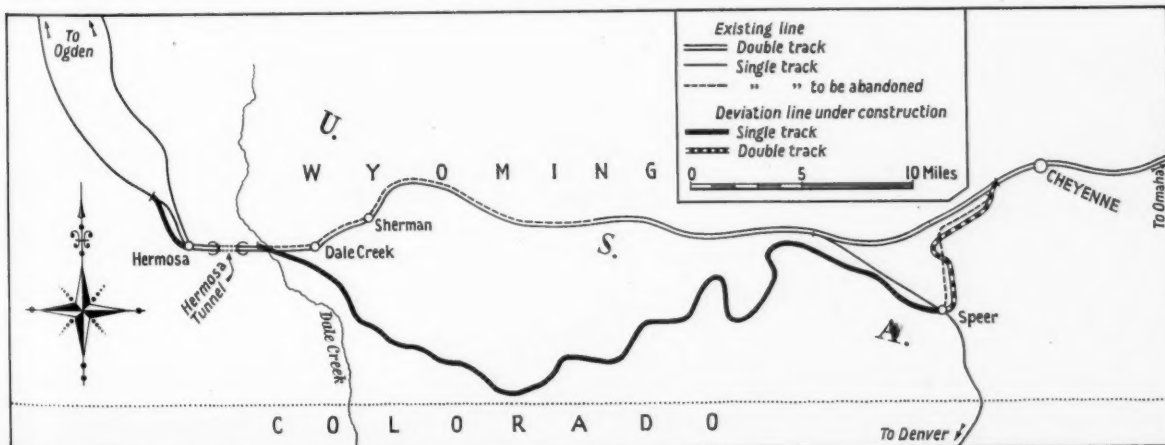
Two of the largest embankments are 112 ft. and 164 ft. high respectively, and the latter will measure 516 ft. in width at the base and require 775,000 cu. yd. of material. The deepest cutting has a maximum depth of 110 ft. and will involve 300,000 cu. yd. of rock excavation; the lead on the spoil is up to  $1\frac{1}{2}$  miles.

## Constructional Equipment

To handle the large volume of earth for the spoil from these fills and cuttings, the following equipment is being used:—

- 2 5-yd. and 3  $2\frac{1}{2}$ -yd. rock shovels
- 1 Euclid loader
- 19 17-yd. end-dump Euclid trucks
- 11 13-yd. bottom-dump Euclid trucks
- 5 15-yd. Terra cobras (rubber-tyred movers)
- 8 patrols
- 2 rotary Portadrills
- 32 caterpillar tractors and a large number of other units.

There are no bridges on the new line, but there are 23 15-ft., two 12 ft. 6 in., and many 6-ft. and 5-ft. culverts, of the Armco multi-plate type encased in concrete, which should pass all the



*Layout of existing and new lines west of Cheyenne*



Soil loosened by rippers being loaded into 17 yd. bottom-dump truck

surface water on the watershed; two of the 15-ft. culverts are, however, intended to pass country roads under the line.

The track consists of 133-lb. rails laid on treated sleepers and stone ballast, and a coaling and watering station is being provided about 10 miles short of Dale Creek. Colour-light signals are being installed and their spacing is arranged to suit the eventual provision of centralised traffic control. Points on the new lines are remote-controlled.

#### Running Time Saved

Only part of the existing westbound track will be dismantled. Despite the nine-mile additional length, a saving of 15 min. running time is expected to result from the transfer of westbound traffic to the new line. The route of the deviation line is scenically more attractive than via Sherman.

## American-Built Locomotives for Australia

### Twenty oil-burning freight engines for New South Wales Government Railways

**T**HE New South Wales Government Railways will shortly take delivery of 20 class "59" freight-traffic, standard gauge, 2-8-2 locomotives, built by the Baldwin-Lima-Hamilton Corporation, U.S.A. The engines are designed for oil-burning and have a tractive effort of 35,000 lb. at 85 per cent boiler pressure; they will be numbered 5901 to 5920.

A feature of the locomotives is the provision of a one-piece cast-steel bed with integral cylinders. The boiler is of the straight top type, having a barrel

diameter of 5 ft. 8 in. A radial-stayed steel firebox is fitted 8 ft. 6½ in. long by 6 ft. 6½ in. wide; the grate area is 47 sq. ft.

A type A superheater is provided and there are 30 large tubes 5½ in. dia. and 139 small tubes of 2 in. dia. The boiler pressure is 200 lb./sq. in. The tender is of the double bogie type and has a water capacity of 5,500 gallons of water and 2,400 gallons of oil-fuel. An 8½-in. C.C. air-pump is provided, and braking is fitted to all driving and tender wheels.

The principal dimensions are as follow:—

Cylinders, diameter and stroke	...	21 in. × 28 in.
Coupled wheels, diameter	...	5 ft.
Front truck wheels, diameter	...	2 ft. 6 in.
Hind truck wheels, diameter	...	3 ft. 6 in.
Grate area	...	47 sq. ft.
Tractive effort at 85 per cent boiler pressure	...	35,000 lb.
Engine weight in working order	...	89 tons.
Tender—		
Wheels, diameter	...	3 ft. 1 in.
Water capacity	...	5,500 gal.
Oil fuel capacity	...	2,400 gal.
Weight in working order	...	61 tons.
Total weight, engine and tender in working order	...	150 tons.



New South Wales Government Railways oil-burning freight locomotive

#### SUNDERLAND-PITTINGTON BRANCH CLOSURE.

—After detailed inquiry into the running of the passenger train service between Sunderland and Pitlington, British Railways found that a considerable loss was being incurred and it was therefore decided to withdraw

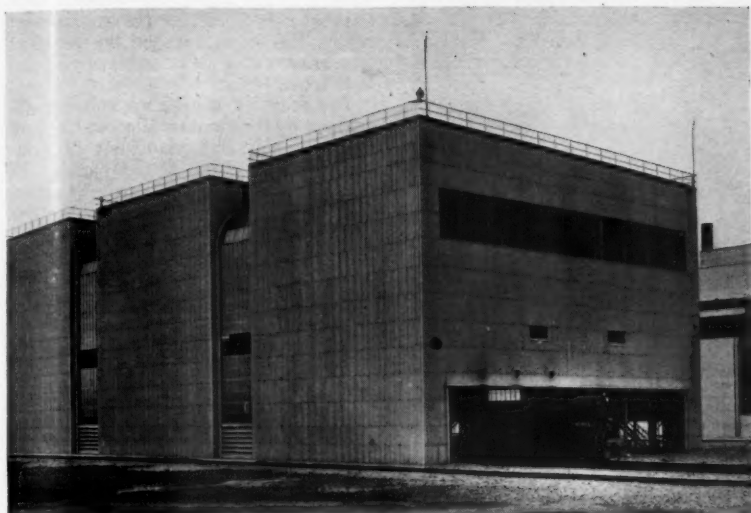
it on and from Monday, January 5, 1953. Alternative bus services are available for passengers. British Railways motor vehicles will continue to collect and deliver parcels traffic throughout the area and parcels traffic will still be handled at Ryhope, and

Hetton stations. There will be no change in the method of dealing with freight traffic except that Murton and Pitlington stations will become unstaffed freight sidings under the control of the station-master at Hetton.



## Radio Communication for Steelworks Shunting Locomotives

*Selective calling system applicable to a fleet of up to 70 units*



The fixed station transmitting and receiving aerials are mounted on the roof of the Abbey Works rolling mill at the stripper bay end

THE decision to use radio communication between the control centres and the locomotives used on the railway system of the Steel Co. of Wales Ltd. was taken as a result of experiments dating back to 1946. The General Electric Co. Ltd. was invited by the consulting engineers, Messrs. McLellan & Partners, to carry out tests of the practicability of reception inside or adjacent to the many steel buildings comprising the plant. First experiments were conducted with a fixed ground station and a mobile station in a car.

Results with standard apparatus showed that, while success could be achieved without any major modifications, the mobile equipments when mounted on locomotives were subjected to somewhat rough treatment during shunting. This difficulty was overcome by enclosing the apparatus in special anti-shock cabinets. These were tested at accelerations up to 16G and no damage resulted from this violent treatment.

Three control centres are linked to the central fixed transmitter, a duplicate of which is now being installed to meet the call for continuous working 24 hr. a day. These control points are General Works Traffic Control (at the South Side weighbridge), Melting Shop Traffic Control, and Ingot Traffic Control (Stripper Bay).

### Selective Calling System

Another innovation which has proved highly successful is the selective calling system, at present covering 13 locomotives. To avoid interrupting work in locomotives other than the one called, the operator at a control point dials the

number of the wanted locomotive. By means of a tone sequence system, this dialling causes a bell to ring and a lamp to light only in the cab of the called locomotive. At the same time an "engaged" lamp lights in all other locomotives and warns the drivers that they cannot be answered if they call before the lamp is extinguished. A similar condition is arranged at the control so that each controller knows if either of the others is using the station.

Incoming calls from the locomotives

are heard at all three control points and can be answered by any of the three. The selective calling system is capable of extension up to a total of 70 locomotives—or other mobile stations—and it is unlikely that a demand will ever arise for a greater number than this. Details of the locomotive radio equipments are given below:—

Type	Number fitted	Source of power for radio
Alco diesel-electric	5	D.c. to d.c. rotary converters driven by starter batteries.
Brush diesel-electric	3	Ditto
Ruston diesel	4	12V. d.c. generator driven by main engine, with floating battery.
Steam loco. ...	1	350-watt, 600-700-cycle steam-driven turbo-alternator with rectifier and smoothing unit.

It will be seen that there are several different arrangements for the supply of power to the equipment in the locomotives, but this lack of standardisation was inevitable in view of the multiplicity of locomotive types. The accompanying illustrations show how the equipment is mounted on the locomotives and also the simplicity of the apparatus in the cab. An unusual feature of the telephone handset is that the casing is made of rubber instead of the more usual plastic moulding, and can thus stand up to very rough usage without damage.

Apart from the obvious advantages of being in direct touch with the locomotives and thus ensuring their maximum utilisation through a minimum of "unloaded" journeys, with a resultant



Control panel, alarm bell, and loudspeaker in cab of an Alco-G.E. shunting locomotive at the steelworks



*Installation of locomotive transmitter/receiver*

saving in fuel and depreciation of capital equipment, another advantage emerges. The almost split-second timing which can be achieved by use of a radio system results in a considerable saving of transit time for hot ingots passing to the rolling mill. Consequently less time is spent in the soaking pit before the ingot reaches the required temperature and a further saving of fuel is effected.

The selective calling system was developed by the General Electric Co. Ltd. especially for this plant but its principles are equally applicable to all situations where it is desired to communicate individually with locomotives working in a given area.

A series of public address systems and an automatic private branch telephone exchange with 600 extensions have also been supplied by the G.E.C. for fixed intercommunication services within the steelworks.

## Portable Sleeve-Valve Compressors

*Units for track maintenance delivering  
60 cu. ft. of free air a minute*

ONE of the features of the special model of the type SV 78 portable sleeve-valve air-compressor manufactured by Broom & Wade Limited, 97 of which are being supplied to the New Zealand Government Railways, is the provision of a grooved wheel on the centre line of the underframing at each end of the vehicle. This feature will be of considerable assistance to the staff when propelling the plant along the permanent way, since the grooved wheels run on the rails themselves while the pneumatic tyres ride on the ballast. For this purpose the height of the wheels is adjustable; the wheels are also

used for supporting the plant when in use.

The power unit is a petrol engine manufactured by the Standard Motor Co. Ltd. It has four cylinders, 80 mm. dia. bore by 92 mm. stroke, developing 24 b.h.p. at 1,500 r.p.m. and provides ample power for operating the compressor at high altitudes. The compressor is of the firm's patent sleeve-valve type, with two cylinders  $4\frac{1}{2}$  in. dia. bore by 3 in. stroke.

The drive is through an automatic centrifugal clutch, and the piston displacement at the speed of 1,500 r.p.m. is 78 cu. ft. per min.; the free air actu-

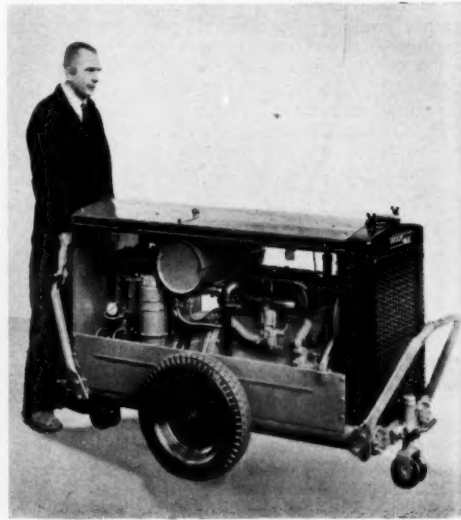
ally delivered at 100 lb. per sq. in. is 60 cu. ft. per min. The machine automatically unloads when the maximum desired pressure in the receiver is reached, and the idling speed is reduced.

A time-lag device automatically allows the engine to attain full working speed before the compressor again picks up its load. The whole unit is of robust construction.

Special small pneumatic-tyre wheels are carried on sprung stub axles fitted with tapered roller bearings, and attached to the receiver-chassis. Tubular manoeuvring handles are fitted. The unit weighs 12 cwt.



*Compressor in operation on the New Zealand Government Railways*



*Details of the power unit showing the compact assembly*

## RAILWAY NEWS SECTION

## PERSONAL

Mr. H. J. Birkbeck has retired as Principal Charges Officer, British Transport Commission.

Colonel W. P. Reed, O.B.E., has been appointed an Inspecting Officer of Railways of the Ministry of Transport in succession to Colonel R. J. Walker, O.B.E., who resigned on October 31, 1952.

pointed Assistant Traffic Manager on the Federated Malay States Railways. In 1939, he became Assistant Transportation Manager on the same system and in 1942, as a Staff Captain in the Transportation Directorate, Malaya, he was mentioned in despatches. From 1942 to 1944 he held the rank of Major, R.E., Transportation Directorate, Ceylon, and in 1944 was promoted Lt.-Colonel. In 1945, he became Colonel, R.E., D.D.Tn. (Rlys.), Malaya,

Mr. M. Kanagasabay, A.M.Inst.T., General Manager, Ceylon Government Railway, who, as recorded in our January 9 issue, has received the honour of O.B.E., was born in 1898, and educated at St. John's College, Jaffna, Ceylon. He obtained his railway training at the Ceylon Technical College, gaining a bonus for being the best all-round student, and commenced his career in the General Manager's office in 1917. In 1929, he was appointed Pro-



*Sir Clive Baillieu, K.B.E., C.M.G.,*  
Chairman, Dunlop Rubber Co. Ltd.,  
who receives a Barony



*Mr. M. Kanagasabay*  
General Manager, Ceylon Government Railway,  
who receives the O.B.E.

Sir Clive Baillieu, K.B.E., C.M.G., Chairman of the Dunlop Rubber Co., Ltd., who becomes a Baron in the New Year Honours, joined the Board in 1929. He was Deputy Chairman from 1945 to 1949, when he succeeded Sir George Beharrell in the chair. The honour has been awarded to Sir Clive for his public services; he was Director General of the British Purchasing Commission to Washington in 1941; head of the British Raw Materials Mission to Washington in 1942-3; President of the Federation of British Industries from 1945 to 1947, and in the following year led the British Trade Mission to the Argentine.

Mr. J. M. Bell, who, as recorded in our January 9 issue, has retired as Acting General Manager, Malayan Railway, entered the service of the London & North Eastern Railway in 1924 as a Traffic Apprentice. In 1927 he became Assistant Yardmaster, York, and remained with the L.N.E.R. until 1929, when he was ap-

pointed Deputy General Manager, Malayan Railway. During the absence of the General Manager he was Acting General Manager and this appointment he held until his retirement in September, 1952.

Mr. John Elliot, Chairman of the Railway Executive and Vice-President of the International Union of Railways, has been nominated an Officer of the Legion of Honour, in recognition of the part he has played in the development of international services between France and Great Britain, and in the promotion of co-operation between their two railway systems.

The following notification appeared in the Supplement dated January 6 to *The London Gazette* of January 2 under the heading of Territorial Army—Engineer & Railway Staff Corps:—

David Blee (426179) to be Colonel, November 18, 1952.

bationary Assistant Divisional Transportation Superintendent. He underwent a course of training locally and, thereafter, with the London & North Eastern Railway from 1931 to 1933. During that period he also attended the North Western Polytechnic (London) and the London School of Economics. On his return to Ceylon he was appointed Assistant Divisional Transportation Superintendent (Supernumerary). He became Assistant Divisional Transportation Superintendent in 1934, Acting Assistant General Manager (Staff & General) in 1936, Deputy General Manager (Administrative) in 1937, and Operating Superintendent in 1943. He acted as Deputy General Manager in 1944. Mr. Kanagasabay is the first Sinhalese to be appointed General Manager. He was first admitted to the Institute of Transport as a graduate in 1930, and passed the Associate Membership examination in 1933 with honours. Mr. Kanagasabay was subsequently raised to full membership of the Institute of Transport in 1948.





**Mr. C. H. Bray**

Appointed Transportation Superintendent,  
New Zealand Government Railways



**Mr. C. F. Tyndall**

Chief Motive Power Engineer, Coras Iompair  
Eireann, 1949-1952



**Mr. E. Lord**

Appointed District Traffic Superintendent,  
Carlisle, London Midland Region

Mr. C. H. Bray, who, as announced in our November 28 issue, has been appointed Transportation Superintendent, New Zealand Government Railways, joined the Railways Department in 1917 as a clerical cadet at Wellington, and later served as a clerk at various county stations in the North Island. In 1931 he was transferred to the District Traffic Manager's office at Auckland, where he remained until his promotion to Stationmaster, Pokeno, in 1938. Shortly before the end of the war he became Assistant Traffic Inspector at Auckland, and two years later entered the Auckland train-running office as Train Control Operator. From 1948, until his recent appointment, Mr. Bray held the position of Train Running Officer at Auckland.

Dr. R. S. Edwards will retire as Chairman of the Council of Industrial Design on January 31, after five years tenure of office. He has been a member of the Council since its inception in 1944. He will be succeeded by Mr. W. T. Worboys, B.Sc., D.Phil., who has been a member of the Council since June, 1947.

Mr. C. J. Rider has been appointed Acting Public Relations & Publicity Officer, British Railways, Western Region, *vice* the late Mr. M. J. M. Dewar.

We regret to record the death, at the age of 54, of Mr. J. S. McDonald, who was recently appointed Manager of the Canadian National Railways Tourist & Convention Bureau.

Mr. H. Grindall, Special Director and Joint Secretary of the Metropolitan-Cammell Carriage & Wagon Company and Secretary of Metropolitan-Cammell-Weymann, Limited, having reached retirement age has relinquished these posts. Mr. C. G. Wallace, hitherto Joint Secretary of the former company becomes Secretary of both companies.

Councillor J. D. Hardie, of Dundee, has been appointed a member of the Transport Users Consultative Committee for Scotland.

Mr. C. F. Tyndall, M.I.Mech.E., M.I.Loco.E., who retired from the post of Chief Motive Power Engineer of Coras Iompair Eireann on December 31, began his railway career with the Great Southern & Western Railway in 1927. After serving his apprenticeship in the various workshops, drawing office and laboratory at Inchicore Works, he was appointed Assistant to the Works Manager. Following the railway amalgamation of 1925, he became Senior Assistant to the Running Superintendent, and for several years he acted as the Company's Inspector of Purchased Materials in Great Britain. In 1930 he was made Assistant District Locomotive Superintendent for the Cork area, and seven years later was promoted Superintendent in charge of the Waterford district. In January, 1952, he was appointed Assistant Running Superintendent, and became Running Superintendent in June of the same year. On the formation of C.I.E., Mr. Tyndall was given the additional post of Mechanical Engineer, and was responsible for the control of both locomotive running and Inchicore Works for the following five years when the departments were once more divided, and he was designated Chief Motive Power Engineer. During the late war and post-war years, Mr. Tyndall was responsible for a number of improvisations to overcome the acute fuel shortage. These included the introduction of oil burners and the use of pulverised fuel and briquettes. He was also responsible for the introduction and operation of the Board's policy for dieselisation.

At the general meeting in London of the Institution of Locomotive Engineers on January 14, Mr. R. C. Bond, Chief Officer (Locomotive Construction & Maintenance), Railway Executive, was nominated for the office of President for 1953-54, with Messrs. A. Campbell and J. F. B. Vidal as new Vice-Presidents. The following were nominated to serve as members of council: Mr. D. C. Brown, Lt.-Colonel K. Cantlie, Messrs. M. A. Crane, I. C. Forsyth, W. G. Hornett, L. J. LeClair, J. H. P. Lloyd, A. W. Manser, A. E. Robson and S. B. Warder.

Mr. E. Lord, Assistant District Traffic Superintendent, Carlisle, London Midland Region, who, as recorded briefly in our November 21 issue, has been appointed District Traffic Superintendent, Carlisle, British Railways, London Midland Region, joined the former L.N.W.R. as a junior clerk at Hinckley in 1908. In 1914 he was transferred to the District Superintendent's office at Euston and was then employed as a relief clerk until he joined H.M. Forces in 1916, serving in Salonika for three years with the Royal Engineers. Mr. Lord returned to railway service in September, 1919, at Rugby and was transferred to Bletchley two years later. In 1926 he entered the railway control organisation and after training in all branches he became District Signalmen's Inspector first at Bletchley and later at Chester. After experience in similar positions at Cudworth and Chester, Mr. Lord was appointed Assistant District Controller, Barrow-in-Furness, in March, 1943, and two years later became Assistant District Operating Superintendent. Mr. Lord was appointed Assistant District Traffic Superintendent, Carlisle, in December, 1948, which post he now vacates for his new appointment.

Mr. George Hiley, South Lincolnshire representative for the Vacuum Oil Co. Ltd., has retired after 46 years' service with the company. To mark the occasion, the Board of Directors gave a dinner in Sheffield, at which many of Mr. Hiley's colleagues were present.

The following appointments have been announced by Metropolitan-Vickers Electrical Co. Ltd.:—

Mr. J. P. A. Meldrum, Manager, Home Sales; Mr. A. E. Grimsdale, Special Assistant, Sales Management, and Mr. J. C. Way, Sales Manager, Traction Department.

Mr. S. B. Haslam has retired as South Wales representative of Walker Bros. (Wigan) Ltd.

Mr. A. E. Houseman has been appointed a Director of Thomas De La Rue & Co. Ltd.

The San Paulo (Brazilian) Railway Company announces that Mr. G. M. Booth and Mr. C. B. Good have resigned from the company's board. In the interests of economy it is not proposed to fill the vacancies.

Mr. T. L. Purves and Mr. L. R. Greet have been appointed Branch Managers of British Callender's Cables Limited at Bristol and Cardiff respectively, in succession to Mr. R. S. Gough and Mr. T. R. Thomas, who have both retired.

In our January 9 issue we recorded that Mr. A. F. Ferrett was retiring as Head of the Goods Traffic Development Section, Commercial Superintendent's office, British Railways, London Midland Region. This should have read: "has retired at the end of last year."

Mr. R. W. Cooper, Chairman of the British Aluminium Co. Ltd., resigned his Directorship on December 31, 1952. He has been succeeded by Viscount Portal of Hungerford, who was already on the board. Mr. E. F. O. Gascoigne has been appointed a Director of the company.

Mr. O. W. Humphreys, Director of the Research Laboratories of the General Electric Company Limited, left this country on January 13 in the liner *Strathmore* for a business tour of Australia. During the course of his tour he will lecture in Sydney to a joint meeting of the Institute of Engineers (Australia) and the Institution of Electrical Engineers (London).

### Presentation to Mr. H. J. Birkbeck

On December 31 the friends and colleagues of Mr. H. J. Birkbeck met to express their good wishes for his future health and happiness, on the occasion of his retirement from the post of Principal Charges Officer, British Transport Commission. Mr. Birkbeck has had more than 47 years' service. The gathering included Members and Chief Officers of the Commission.

Mr. S. B. Taylor, Chief Secretary to the British Transport Commission, in making the presentation of a portable wireless

receiver and a pair of binoculars, referred to the affection and esteem in which Mr. Birkbeck was held by all. Mr. Taylor congratulated him on his wisdom in the preparations he had made against the time of his retirement by providing himself with such a healthy hobby as farming, and wished him good health and good fortune in the years ahead.

Sir William Wood joined the Chief Secretary in his tribute by expressing his appreciation of Mr. Birkbeck's qualities, and hoped he would have many years in which to enjoy his retirement.

Mr. Frank Gilbert, on behalf of his brother officers, said Mr. Birkbeck's presence and good company would be missed by all, but they wished him to know that their good wishes for his health and future success in his new undertaking were abundant and sincere.

Mr. Birkbeck, responding, thanked all his colleagues for the kind expressions that had been voiced and for the tangible expressions of their goodwill. He said that the gifts would be constant reminders, though that was not really necessary, of very happy associations.

### New Line in Travancore-Cochin

The Prime Minister of India, Mr. Jawaharlal Nehru, on December 24, 1952, turned the first sod of a metre-gauge branch of the Southern Railway between Ernakulam, on the broad-gauge Shoranur-Cochin Harbour branch of the former South Indian Railway, and Quilon, on the metre-gauge Madura-Trivandrum line of the old S.I.R. The ceremony was held at Ernakulam Station in the presence of the Rajpramukh of Travancore-Cochin, the Minister of Railways & Transport, Mr. Lal Bahadur Shastri, the Deputy Minister for Railways, Mr. O. V. Alagesan, the Chief Minister and other Ministers of State of Travancore-Cochin, and Mr. K. R. Ramanujam, General Manager of the Southern Railway.

The idea of a railway link between the capitals of the two former States of Travancore and Cochin was conceived by the late Sardar Patel during 1950 after the integration of the two States. Mr. Lal Bahadur Shastri at the ceremony on Decem-

ber 24, requesting Mr. Nehru to inaugurate the construction of the Ernakulam-Quilon railway, said that he had no doubt that this new line would serve to develop "this lovely part of our country which has already been so well endowed by nature."

The Government of India and that of the State both were anxious that the new line should be rapidly provided.

### Heavy Engineering Work

The new line will be 96 miles long, and will cost some Rs. 5.5 crores. Construction involves building 42 major bridges, largely through the "backwater" country of Cochin and Travancore, and two tunnels aggregating 100 ft. in length through foothills of the Western Ghats. The country served has a population of some 4,000,000. Besides opening up the region, now largely served by inland water transport on the "backwaters," the new line will improve access to the port of Cochin.

The branch from Shoranur to Cochin was opened in 1902 as a metre-gauge Cochin State line, but was widened to 5 ft. 6 in. gauge in 1934 in conjunction with the development of Cochin Harbour, to which a connection was required at Shoranur with the broad-gauge West Coast line of the S.I.R., giving access to Madras.

### Manila Railway Claims

At the annual meeting in London on December 29 of the Manila Railway Company (1906) Limited, Sir Findlater Stewart, Chairman, referring to the company's claims in respect of its holding of refunding mortgage bonds of the Manila Railroad Company, said that they had probably seen reports, emanating from Manila, referring to the possibility that the railroad would sell surplus assets, not required for the operation of the railroad, and use the proceeds to meet their claims. No property of the undertaking could be sold without the company's consent and the consent of the trustees of the refunding mortgage bonds, he pointed out.

A letter had been received from the Manila Railroad Company, asking in general terms whether they would consent to the sale of surplus properties. They replied that they would agree, provided the proceeds of sale were paid over to the trustees of the refunding mortgage bonds for the account of bondholders. The Chairman remarked that he would sum up the situation by saying that while no specific proposals as to the sale of the properties, or the terms of a general settlement, had been made to us by the Railroad Company, they might perhaps hope, in the light of the latest approach from Manila, for a more realistic treatment of claims.

The report of the Railroad Company did not reach the company until after the accounts had been sent out, but the results for the year ended June 30, 1952, were considerably worse than those of the previous year. The loss amounted to pesos 4,785,510, against a loss of pesos 2,586,602. "In the light of this," the Chairman said, "it would not be surprising if steps were now under consideration in Manila for taking up from the United States Mutual Security Agency the grant of pesos 60,000,000, which we understand might be made available in certain circumstances for the rehabilitation of the railway." The chairman added that he had no information about the conditions which might be attached to this grant, nor had he a reliable estimate of the value of the company's surplus assets. The railroad's larger loss this year was due to costs and wages.



Mr. H. J. Birkbeck receiving the presentation binoculars from Mr. S. B. Taylor at the ceremony marking his retirement

## Running Line Capacity

*Paper to I.R.S.E. on comparative advantages of various signalling measures*

At a meeting of the Institution of Railway Signal Engineers on December 12, a paper was read by Mr. B. F. Wagenrieder on "Running Line Capacity." The treatment of the subject was on general lines, omitting the influence of signal checks, bad visibility, and gradients. The paper, illustrated by slides, described the importance of position of starting signals; the help obtained by the use of intermediate block signals on 2½-mile sections; and refuting at intermediate points. It discussed loops *versus* refuge sidings and dealt with position and length of loops and junction layout facilities.

Mr. F. B. Egginton, opening the discussion, said that however desirable it might be to split up a section to get trains through it more speedily, often a much longer section existed some miles to the rear, which would prevent trains feeding into the section fast enough to make use of the proposed increased headway. A few years ago it had been found that a refuge siding suitably located with an outer home for accepting a following train while the first was setting back into the siding, was more advantageous than a run-in loop line, particularly if complete track circuiting through the section were not provided. The loop might show an advantage with a shorter approach section, but the question of economics would almost certainly weight the balance against the loop line, unless it was required to take passenger trains, in which case the set-back movement could not be contemplated.

One case where the retention of inner home signals would be of benefit at junctions would be where a busy level crossing existed ahead of the junction. To obstruct the road traffic while a train, starting from a stand, ran the 440 yd. from the outer home signal, would be detrimental. It would be better, if the train had to be held, to bring it forward to the inner home and then get it over the level crossing quickly.

Mr. E. G. Brentnall said that in the few cases on his Region where they changed the block working from absolute to permissive for freight trains, they had an extra safeguard in the form of an indicator on the block instrument to remind the signalman of the method in force. Referring to the advantage of providing a starting signal at a signal box in the middle of a section, he thought additional benefit might be derived from the provision of an outer home. He gave reasons why he preferred a loop to a set-back siding, and wondered whether the author had not been optimistic in allowing only 3½ min. for the shunting back of a 60-wagon train.

Mr. J. H. Fraser thought that the paper would bring a fresh point of view to many of their younger members. Signal engineers regarded themselves as custodians of railway safety; it should also be appreciated that an important aspect of their work was to run as many trains as possible over a certain pair of tracks.

Mr. C. G. Derbyshire considered that the provision of an outer home at a signalbox had a very important bearing on the headway of the section, as it would allow earlier acceptance of a train from the box in rear and earlier clearance of the latter's distant signal. The provision of an inner home at a junction fouling

point and an outer home or "home 1" ½-mile in the rear, with a distant in the rear of that, and track-circuiting back to the rear box, enabled a second train to approach the junction from the rear box whilst the first was at the inner home.

Mr. S. Williams felt that if a loop was provided for improving headway, it was no use whatever unless twice the length of a train. Regarding the author's suggestion of taking off the interlocking of the trailing points from the outer home signal, he did not advise this if there was a steep rise in gradient.

Mr. P. B. Pearman said, in connection with the refuge siding, that the driver would be unaware why the distant signal was at caution, unless there was an indication in the service timetable that he was to shunt there; but all drivers understood the meaning of the lowering of the outer home.

After Mr. Wagenrieder had replied to the points raised, the President, Mr. T. S. Lascelles, moved a very hearty vote of thanks to him for having come out of retirement to read such an interesting and valuable paper.

The paper was preceded by an extraordinary general meeting of the institution, with the President in the chair, at which special resolutions were passed introducing a new class of membership and giving the Council control over the rates of subscription.

## British Railways' Achievements Since Nationalisation

*Results of five years' efforts*

In the leading article entitled "Five Years' Hard Labour" in the January issue of the *British Railways Magazine*, "The Man on the Line" points out that the completion of five years of a unified system of British Railways since nationalisation on January 1, 1948, is a good time to take stock. There are visible today, he states, many successful results of the efforts made to achieve increased efficiency and economy.

New standard flat-bottom track has been introduced which is stronger, simpler, with 16,900 fewer components to the mile, and cheaper in maintenance than the prewar track; there has been rapid growth in the use of mechanised appliances; and in the last three years, 1,000 miles of track have been laid in pre-assembled lengths.

The new British Railways standard locomotives, carriages, and wagons have been designed to permit maximum availability throughout Britain, a result often dreamed of but never seriously attempted before nationalisation. The twelve standard types of locomotives evolved eventually will cover the duties now performed by over 400 types. Some 1,500 fewer locomotives are needed today than at the end of 1947, and they are doing more work. Moreover they now run on average 32,183 miles without casualty, compared with the 1949 figure of 15,845 miles. They are also run more efficiently. In 1951 they consumed 2.58 lb. a mile less coal than in 1947, and although they ran 10,000,000 more miles, the coal used decreased by 285,000 tons.

The all-steel standard coaches, the article continues, give twice the end-shock resistance of any pre-unification design. Since 1947, the number of types of wagons has been reduced from 480 to 90. New 24½-ton wagons have been produced for coal and iron ore, while the number of all types of wagons out of service for repairs has been halved.

### Economies Through Unification

In building locomotives and rolling stock it has been possible to use all British Railways workshops on a unified national basis, allocating work for any or all Regions to the shops best equipped to carry it out, which has lowered costs by millions of pounds.

"The Man on the Line" shows that unification has enabled through inter-Regional working of locomotives and crews to be introduced on a wide scale. Traffic is now sent by the most direct

route, saving both time and cost. It has been possible without sacrificing efficiency to reduce the number of District departmental offices by 48; and by simplified working 71 goods depots, 34 marshalling yards, and 36 motive power depots and sub-depots have been closed.

Hundreds of stores items have been standardised, which with central purchasing means smaller stocks and big economies. The number of qualities of paper used, for instance, has been reduced from 100 to 17; and over 7,300 forms have been eliminated.

### Fewer Ships, More Work

Record marine traffics have been carried in the fewer ships that now compose British Railways fleet. New vessels are designed for the maximum availability between services, and the interchange of ships between various routes has avoided outside chartering and new building.

These are but the high-lights of the past five years' achievements, he concludes. That there have been some mistakes and failures is also true—and inevitable in such a changeover. There is still much to do.

## Illinois Central Prospects

A review of the past year and survey of prospects for the Illinois Central Railroad in 1953 has been issued by the President, Mr. Wayne A. Johnston. The railway had a good year in 1952, for which operating revenue is expected to reach a new record of \$302,000,000, an increase of about \$7,000,000 over 1951. Net income estimated for 1952 of nearly \$23,000,000 compares with net income for 1951 of little more than \$18,000,000.

An analysis of factors bearing on general business activity during 1953 indicates that Illinois Central operating revenues and net income for this year will compare favourably with 1953 results. The accelerated level of business which had been experienced during the latter part of last year could well be expected to continue at least until mid-1953.

The railway is now planning capital expenditures in 1953 for replacements and improvements of about \$20,000,000, compared with \$23,500,000 in 1952. From January, 1947, to the close of 1952 the Illinois Central Railroad had spent about \$152,000,000 for replacements and improvements in property and equipment.



These expenditures have added more than 16,000 new freight wagons, 54 new passenger vehicles, 136 diesel shunting and transfer locomotives, and 20 diesel passenger locomotives, and have kept the fixed equipment of the railway up-to-date and in good condition.

One of the greatest accomplishments on the Illinois Central during 1952 was realisation of the plan to simplify the financial structure of the company. A significant step in this programme was the creation of a consolidated mortgage in 1949. This mortgage provided a means for the Illinois Central to consolidate its bonded debt under a single mortgage. The sale of \$13,000,000 of consolidated mortgage bonds in June, 1952, and the commitment for a further sale of \$12,000,000 of these bonds in 1954 at the option of the company, enabled the company to provide for maturities through 1955. This action, together with the sale of \$62,000,000 of consolidated bonds in August, 1952, to retire the joint refunding bonds of 1963, has cleared the way to place all mortgage debt under a single mortgage. That will leave \$35,000,000 of debentures due in 1966 to be taken care of other than the consolidated mortgage. Since 1939 the Illinois Central has reduced funded debt, exclusive of equipment obligations, from more than \$332,000,000 to approximately \$151,000,000, thereby greatly improving the company's ability to withstand the effects of business cycles.

### Avalanche Protection on the Loetschberg Railway

The worth of an avalanche signalling device, unique in Switzerland, was proved again when an avalanche hit the Loetschberg line between Ausserberg and Hohenstein stations just before Christmas. Ausserberg is about eight miles west of Brig and Hohenstein about six miles further west. When it struck, all persons concerned had already taken refuge. Traffic was interrupted from the afternoon of December 21 to the next morning. The installation crosses the track of a well-known avalanche path through Mahnkinn ravine. The bridge which formerly carried the line across the ravine was destroyed by an avalanche some years ago, and replaced by an embankment. Two double wires at different levels cross the ravine, the lower pair visible from the line, but the upper some 3,280 ft. above it.

An avalanche coming down will first tear down both upper wires, stretched 18 ft. and 10 ft. above the ground, and set at danger signals at Ausserberg and Hohenstein, east and west of the ravine respectively. Trains caught between the two stations have time to get out of the path of the approaching avalanche. Simultaneously with the setting of the signals at danger a bell and electric-light signals are operated at Ausserberg Station. These warn the stationmaster, who at once asks his colleague at Hohenstein and the permanent way inspector to have the line closed to traffic and subsequently cleared. When the line has been freed from the debris of an avalanche the stationmaster sets the signals at clear, enabling trains to proceed. While the clearance work is in progress the avalanche warning wires are reset.

The protection installation operates between December and March 31. It is supplied with power from a dry battery at Ausserberg Station, and is thus self-contained and not liable to possible interruptions of the normal current supply

brought about by avalanches or other causes.

The section between Ausserberg and Hohenstein is the only one on the Loetschberg Railway requiring a warning installation. At other places where there is a likelihood of avalanches descending on to the track, galleries or tunnels have been built for protection. On some slopes along the southern section of the line to the south of the Loetschberg Tunnel a large number of protection walls, some at a height of 9,000 ft., has been erected to break and stop avalanches in their initial stage.

### Increased Charges in Northern Ireland

The Ulster Transport Authority is to increase by 5 per cent its freight charges and fares (except those between Id. and 10d.). The increases will apply from February 2, when the Great Northern Railway (Ireland) will bring into effect similar increases. An award last autumn added £250,000 a year to the wage bill of the U.T.A. Since the Authority was established in 1948, said Mr. J. A. Clarke, General Manager, the level of costs had risen on an annual basis by £1,600,000. Total taxation and loan charges borne during the past financial year was £900,000. The U.T.A. last increased its fares on April 28, 1952, by 10 per cent.

When the new increases come into operation passenger fares will show an excess of 72 per cent over those for 1939, and season ticket rates will be up by 85 per cent. Against those figures, Mr. Clarke pointed out that since 1939 timber sleepers had gone up by 420 per cent; steel rails by 222 per cent; petrol by 240 per cent, and coal (40 to 50,000 tons are used in a year) by 261 per cent.

Under the 1948 Act the Authority is required to bring to the Transport Tribunal proposals for its level of rates and fares and conditions of carriage. Those which come into force next month would probably have been before the Tribunal had it not been for the recent public inquiry. The Authority hopes to have the freight rates ready for presentation to the Tribunal within the next few months and the passenger fare structure submitted as soon as possible after that.

The financial report of the U.T.A. for 1952 was due to be issued on January 15 and expected to show a loss of £475,000. The Transport Tribunal estimated that £249,000 would be operative losses after taking into account a loss of £355,000 on the railways, £338,000 for increased fuel tax and making provision for £226,000 for loan charges and capital redemption.

### Argentine Summer Timetables

The summer timetables of the Argentine Railways are now in force. The principal details are as follows:—

**General Roca Railway.**—The summer services to Mar del Plata consist of one express daily, another six days a week, a weekend express and a daily semi-fast train. To Necochea there is a night express four days a week, a day express three days a week, the diesel express "El Huemul" twice a week, as well as a weekend express. Zapala is served by one train daily and Bariloche by the "Lagos del Sur" express daily, "El Tronador" express twice weekly, and a stopping train three times weekly. To Bahia Blanca there is a day express four times weekly and a daily night express via Azul, and a day train five

times weekly and a night train twice weekly via Saavedra.

**General Mitre Railway.**—This season the services to Cordoba and the hill stations consist of the night express "Rayo de Sol," the day express "El Serrano" and a stopping train, all running daily. Tucumán and Santiago del Estero are served by the air-conditioned "El Tucumano" twice weekly, the express "Estrella del Norte" twice weekly, "El Santiagueño" once weekly and a stopping train five times weekly. To Santa Fé, "El Santafesino" runs six times a week, and there is a motor-coach connection with the Buenos-Aires-Rosario expresses daily. The Rosario service is maintained by the expresses "El Porteño," "El Rosarino" and "El Santafesino," all daily; "El Vespertino" at weekends; an express train five times a week; and a stopping train daily. Rio Cuarto has five trains a week, via San Urbano, and four via Firmat. There are two trains a week between Rosario and Bahia Blanca, and the cross-country service between Rosario and Mendoza is also maintained twice weekly.

**General San Martín Railway.**—The international service to Chile is maintained by "El Libertador" twice weekly. To Mendoza and San Juan, the day express "El Cuyano" runs six times weekly, a night express three times weekly and the night train "El Zonda" twice weekly. To Villa Dolores there is a through night express twice weekly and "El Sierras Grandes" once a week. San Rafael has the night express "El Nihuil" twice a week.

**General Belgrano Railway.**—To Bolivia, the international service is maintained by "El Panamericano" once weekly, La Quiaca also having a service by "El Noroeste" three days a week and Jujuy also three days a week. The new diesel express "El Capillense" now runs between Santa Fé and Capilla del Monte two days a week. To Catamarca there is a train six days a week and to Tucumán a daily service via Dean Funes and four times a week via Añatuya. Resistencia has five trains a week via Añatuya, three via General Pinedo, and the express "El Peronista" six days a week via San Justo. The cross-country service from Santa Fé to Mendoza runs three days a week.

The General Urquiza and D. F. Sarmiento Railways do not show any major changes. On the latter railway the "Eva Peron" express to Toay runs six days a week and "El Condor" to Colonia Alvear three days a week. The cross-country service between San Juan and Mendoza (San Martín Railway), Huinca Renanco (D. F. Sarmiento Railway) and Bahia Blanca (General Roca Railway) is once weekly.

**EXCEPTIONAL LOADS HANDLED ON L.M.R.**—Diesel locomotives for Benguela, New South Wales, and Rhodesia, and railway coaches and equipment for Ceylon, Kenya, and Egypt were among the record total of 8,948 out-of-gauge loads carried by the London Midland Region during 1952—nearly 750 more than in 1951. Heaviest load was an electric transformer weighing 119 tons, and one of the longest hauls was another large transformer which travelled nearly 300 miles from Stafford to Dunfermline. These 8,948 exceptional loads constitute a 12 months' record on the London Midland, and transporting them often meant the moving of signals, lineside huts, and crossing gates; and in some cases the loads had to be slowed before they could pass safely. Experts had to accompany them throughout the journeys, which often had to be performed at slow speeds owing to the nature of the loads.



obvious advantage to a monorail compared with more orthodox means of transport.

### Transport Bill Report Stage

Mr. Harry Crookshank (Leader of the House) said in the House of Commons on December 18 that he had considered representations on the time allocated for the report stage of the Transport Bill, and had consulted the Minister of Transport. The Government was prepared to give an extra day for that stage, making three in all. This would involve an amendment of the timetable motion.

Mr. Herbert Morrison (Lewisham S.—Lab.) expressed the Opposition appreciation of the Government's action.

### Contracts & Tenders

The South African Railways have placed the following contracts for rails:—

Bethlehem Steel Corporation, U.S.A.	67,584 tons of 96 lb. main line rail	£ 2,246,323
United Steel Sales Company, U.S.A.	21,384 tons of 81 lb. rail	751,752
Comptoir des Acieries Belges, Seraing, Belgium	14,000 tons	1,121,344
Arbed, Luxembourg	14,000 tons	

The Director-General, India Store Department, is inviting tenders for the supply of wheels and axles for narrow-gauge coaches and wagons. Details are given under Official Notices on page 83.

The Special Register Information Service, Board of Trade, reports that the United Kingdom Trade Commissioner at Delhi has notified the Commercial Relations & Exports Department of a call for tenders issued by the Directorate General of Supplies and Disposals, Government of India for:—

- 3,520 couplings, screw, standard, complete (broad gauge).
- 1,100 hooks, shackle, for screw couplings (broad gauge), steel class IV.
- 157 couplings, screw (metre gauge) and couplings screw handle (metre gauge).

Tenders should reach the office of the Director General of Supplies & Disposals, Shahjahan Road, New Delhi, by 10 a.m. on January 30. A copy of the tender documents is available for inspection at the Board of Trade by representatives of interested United Kingdom manufacturers. A further copy is available on loan in order of written application. Reference CRE/43561/52 should be quoted.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, has stated that the British Consul-General at Lourenço Marques has notified the Department of a call for tenders by the Directorate of Ports, Railway & Transport Services, Lourenço Marques, for the supply of locomotive and wagon spare parts.

Tenders should reach the General Stores, Directorate of Port, Railway & Transport Services, Lourenço Marques, Mozambique, by 3 p.m. on Wednesday, February 18. A copy of the tender documents (in Portuguese) is available for inspection at the Board of Trade, by representatives of interested United Kingdom manufacturers. Copies of an unofficial

translation of the tender documents are available on loan in order of written application. Reference CRE/42664/52 should be quoted. United Kingdom manufacturers are reminded that they cannot submit tenders direct, but only through firms established in Mozambique whose names are registered with the Stores Department of the Treasury (Almoxarifado de Fazenda), Lourenço Marques.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, reports that the First Secretary (Commercial) of the British Embassy at Bangkok has notified a call for tenders issued by the Railways Organisation of Thailand for:—

- 10,000 sets of oil cushions with springs as per drawing SM 1287, 9 in. by 4 in. (Armstrong Oiler type pad).

Tenders should reach the Stores Office, Railways Organisation of Thailand, Bangkok, by 10 a.m. on Monday, February 16. A copy of the tender documents and drawing is available for inspection at the Board of Trade by representatives of United Kingdom manufacturers. Further copies of the tender documents only are available on loan in order of written application. Reference CRE/1345/53 should be quoted.

The Board of Trade, Commercial Relations & Exports Department, states that the United Kingdom Trade Commissioner at Wellington, New Zealand, has reported a call for tenders issued by the Timaru Harbour Board for a diesel locomotive for use on 3 ft. 6 in. gauge track of 55 lb. flat-bottom rails. A specification is available to indicate the general requirements of the Board, at the same time giving tenderers the opportunity to offer their standard design of locomotive. The locomotive will be required to haul trains of loaded rock wagons (trailing load 250-300 tons) from the Board's quarry to the foreshore at Timaru, approximately six miles. The line is mainly on a downgrade from the quarry, although loaded trains are faced with a climb at 1 in 40 for 49 ch. The ruling gradient for the returning empties is 1 in 33. The sharpest curve, which the locomotive must be capable of negotiating easily, has a radius of four chains and is on a level part of the track.

Tenders must reach the Chairman, Timaru Harbour Board, P.O. Box 76, Timaru, New Zealand, by noon on Wednesday, March 11. They must be marked "Tender for Diesel Locomotive." A copy of the tender documents, specification and gradient profile diagram, is available for inspection at the Board of Trade by representatives of United Kingdom manufacturers.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, reports that the United Kingdom Trade Commissioner at Delhi has notified a call for tenders issued by the Directorate General of Supplies & Disposals, Government of India, for:

- 80 buffer outer cases for short buffers of cast steel, C.M.E. Central (G.I.P.) Railway.
- 1,800 buffer plungers, 13 in. dia face of cast steel or steel, class II or III, complete with floating spindle fixed in position with plugs (welded on).

Tenders should reach the office of the Director General of Supplies & Disposals, Shahjahan Road, New Delhi, by 10 a.m. on January 30, 1953. A copy of the tender

documents is available for inspection at the Board of Trade by representatives of interested United Kingdom manufacturers. A further copy is available on loan in order of written application. Reference C.R.E./1139/53 should be quoted.

### Notes and News

**Institution of Locomotive Engineers.**—The annual luncheon of the Institution of Locomotive Engineers will be held at the Dorchester Hotel, Park Lane, W.1, on Friday, March 6.

**Locomotive Draughtsman Required.**—Applications are invited for the post of locomotive draughtsman required by the Yorkshire Engine Co. Ltd., Meadow Hall Works, Sheffield, 9. See Official Notices on page 83.

**Assistant Transport Manager Required.**—Applications are invited for the post of assistant transport manager, between 35 and 40 years of age, required for iron and steel works in the north-east district. See Official Notices on page 83.

**Vacancy for Assistant Traffic Superintendent.**—Applications are invited for the post of assistant traffic superintendent, railway department, required for the Gold Coast local Civil Service, for two tours each of 18 to 24 months in the first instance. See Official Notices on page 83.

**Assistant Electrical & Mechanical Engineer Required.**—Applications are invited for the post of assistant electrical & mechanical engineer, Pier and Foreshore Department, County Borough of Southend-on-Sea. Age limit 40 years, 45 if already in Local Government Superannuation Scheme. See Official Notices on page 83.

**International Signalling Vocabulary.**—On Tuesday, Wednesday, and Thursday this week a special sub-committee of the International Union of Railways charged with preparing a vocabulary of signalling terms met in London under the chairmanship of Mr. E. G. Brentnall, Assistant Signal & Telecommunications Engineer, L.M.R. Great Britain, France, Germany, and Italy are represented on the sub-committee, whose object is to agree on terms in the languages of these four countries for their signalling equipment and practices.

**Glyn, Mills & Company Results.**—The report for the year ended December 31, 1952, of Glyn, Mills & Company shows that the profit for the year, after providing for tax and transfer to reserve for contingencies, was £146,628. To this has to be added the balance brought forward from 1951, making a total of £210,031. Out of this, appropriations have been made: interim dividend at 7½ per cent paid on August 15, 1952, £79,500, less income tax £37,762, which with £50,000 additional transfer to reserve for contingencies leaves £118,293. From this the directors propose a final dividend of 7½ per cent, amounting to £79,500, less income tax £37,762, leaving a balance to be carried forward of £76,555.

**Objections to New Passenger Charges Scheme.**—The London County Council will be among the bodies lodging objections to the Passenger Charges Scheme, 1953, described in last week's issue. The Scheme has been criticised by the London Trades Council and the London Passengers' Association. Mr. Neville Rayner, Chairman of the National Union of Rate-



payers' Associations, stated last week that "this policy of scaring travellers from using London Transport will have a ricochet effect on the fare-raisers, who will thus be responsible for their own predicament." He said also that ratepayers were not satisfied with the standard of efficiency and economical operating of London Transport services. Objections to the Scheme must be lodged with the Transport Tribunal by February 2, and hearing by the Tribunal is to begin on March 9.

**Walker Bros. (Wigan) Ltd. Newcastle Office.**—Walker Bros. (Wigan) Ltd., Pagefield Iron Works, Wigan, has ceased to have an office at Newcastle-upon-Tyne. Pending further arrangements all inquiries from South Wales and Newcastle should be sent direct to the firm's head office at Wigan.

**British Railways Coal, Iron, and Steel Carriages.**—British Railways carried 3,207,040 tons of deep-mined and open-cast coal during the week ended 6 a.m. on January 12. The weekend figure was 396,710 tons. During the week ended January 3, 191,660 tons of iron and steel from the principal steelworks and 315,000 tons of iron ore were conveyed.

**Transport Course at Ashridge.**—The Institute of Transport is again co-operating with Ashridge College in arranging a week-end course on transport, to be held from November 6 to 9, 1953. The course will be open to members of the Institute and to non-members, and ladies may also attend. The course will run from the Friday evening to the Monday morning.

**French Electric Locomotive Mileage.**—One of the new 1,500-V. d.c. Co-Co electric locomotives, No. CC.7101, of the French National Railways, running on the Paris—Dijon—Lyons route, covered 46,776 km. (29,000 miles) in the month of August, 1952, and this is claimed to be a record for any form of railway motive power anywhere.

**Railway Strike in Italy.**—Services throughout Italy were disrupted by a 24-hr. railway strike which began at midnight on January 13 in support of demands to the Government for higher wages and more privileges. Efforts made by members of unions, which refused to support the strike, and by military railway units to run some trains did little to relieve the situation, although an occasional train, usually with a military guard, managed to leave or get through to the larger cities. Canteens were opened for railwaymen compelled to pass the night away from their homes. Motor-coach and air lines ran many supplementary services.

**British Railways, Western Region, London Lecture & Debating Society.**—At a meeting of the Western Region London Lecture & Debating Society on January 29, in the Headquarters' Staff Dining Club, Bishop's Bridge Road, Paddington, at 5.45 p.m. a paper will be read by Mr. W. F. Cartwright, Director and General Manager, Steel Company of Wales Limited, on "Steel Company of Wales: Developments at Port Talbot."

**Estimate of G.N.R.(I.) Losses.**—A loss on working of £920,000 for the Great Northern Railway (Ireland) for the year ending on March 31 has been forecast by Mr. J. F. McCormick, Assistant General Manager. He was speaking at the Irish Railway Wages Board hearing of an application by two trade unions that Dundalk

and Drogheda Stations be regarded as the same as Dublin so far as the rates of pay of the conciliation grades are concerned. The board, by a majority, decided not to make any recommendation. If conceded the claim would cost the company an additional £6,300 a year.

**The Institution of Civil Engineers.**—On January 27, at the Institution of Civil Engineers, Great George Street, S.W.1, at 5.30 p.m., a paper will be read on "Design of Structures in Relation to Maintenance and Inspection" by Mr. P. Turton and Mr. N. S. Cox.

**Railway Students' Association.**—On January 28 a paper will be delivered to the Railway Students Association at the London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6.15 p.m. on "British Railways and the Coal Industry" by Mr. W. L. Kelly, Assistant Director of Marketing (Transport), National Coal Board.

**Lancaster-Morecambe-Heysham Electrification.**—Two of the three 3-coach trains referred to in our December 26, 1952, issue are now operating on the Lancaster-Morecambe-Heysham branch, which has been electrified experimentally on the 50-cycle system. All three sets are original L.N.W.R. fourth-rail electric stock; the third is now being converted.

**Coronation Year B.I.F.**—The Management Committee of the British Industries Fair at Castle Bromwich, Birmingham, announces that five months before the fair opens, the position at Castle Bromwich is that 96 per cent of all space indoors has been sold. Bookings for the outdoor section are piling up. The dates of the fair are April 27 to May 8. The President of the Birmingham Chamber of Commerce, Mr. A. B. Waring, and his Management Committee estimate that more than 1,200 firms will have their latest goods on show in April in the three heavier industrial sections (Engineering, Electrical, and Building) and in the Hardware group.

**Aylesbury—Cheddington Line, L.M.R., to Close.**—The passenger train service between Aylesbury High Street and Cheddington is to be withdrawn on and from Monday, February 2. Aylesbury High Street and Marston Gate stations will be closed for passengers, parcels, and passenger train merchandise from that date. Season tickets and return halves of ordinary tickets expiring after January 31, 1953, will be available on alternative road services. Parcels and passenger train merchandise traffic for Aylesbury will be dealt with at Aylesbury Town Station, and traffic for Marston Gate will continue to be dealt with at Tring.

**Paris-Lyons Electrification.**—Monsieur C. M. Hannoyer, General Manager of French Railways Limited in London, gave a talk on the Paris-Lyons electrification at a meeting on January 13 of the British Railways (Southern Region) Lecture & Debating Society in London. Several French Railways films were shown during the evening, their subjects including the conversion of the Paris-Lyons line for electric working and the new signal box at Montreaux. Answering questions at the end of his address, Monsieur Hannoyer said it was hoped that the complementary electrification of the Macon and Lyons to Ambérieu and Culoz triangle would be completed by May, 1954, connecting at Culoz with the existing 1,500 V. d.c. system to Modane. If electrification were con-

tinued along the main line from Lyons it might not be necessary to go beyond Avignon as this would tap the area producing perishables traffic and bring the scheme conveniently close to the Mediterranean Region electrification at Nîmes for a possible link-up.

**Historical Model Railway Society.**—At a meeting of the Historical Model Railway Society to be held at the Stephenson Locomotive Society, 32, Russell Road, W.14, on February 2, at 7 p.m., Mr. C. Grasemann will read a paper on "The Railway Cross-Channel Services."

**Blackwall Tunnel Proposal.**—Poplar Council recently approved a resolution that representations be made to the Minister of Transport urging that Blackwall Tunnel be made a one-way thoroughfare for traffic going south, with Rotherhithe Tunnel taking one-way traffic going north.

**G.N.R.(I.) Legislation.**—In reply to a question in the Northern Ireland Parliament, Lord Glentoran, the Parliamentary Secretary to the Ministry of Commerce, said that it was hoped shortly to introduce a Bill to give legislative effect to the Government's proposal to acquire jointly with the Government of the Republic of Ireland the undertaking of the Great Northern Railway Company. The Bill to extend the term of office of Sir Anthony Babington, Chairman of the Transport Tribunal for Northern Ireland, was given a first reading. Under the Transport Tribunal (First Chairman) Act, 1948, the term of office was for four years.

**Peruvian Corporation Limited.**—The Chairman's statement on railway operations of the Peruvian Corporation Limited in the year ended June 30, 1952, records a continuing increase in international traffic on the Bolivian system. This traffic amounted to some 128,500 tons as compared with 118,000 tons the year before; net profits were shown by the Central Railway and the Southern Railway, the figure for the former being £40,871, and for the latter £213,300. The Southern Railway result was an improvement of £15,436 on the preceding year. Both systems find that more traffic is being offered than can be handled conveniently with existing motive power, but the effect of new units now on order should be felt in 1953-54.

**Turner & Newall Limited Results.**—The report for the year ended September 30, 1952, of Turner & Newall Limited shows that the balance available for appropriation was £1,571,129, which after deduction of £53,077 for preference stock for the year and of £140,138 for 5 per cent interim ordinary dividend, leaves £560,554 recommended for distribution as a final ordinary dividend of 20 per cent (making 25 per cent. for the year), with appropriations of £600,000 for general reserve and £20,000 for the Turner & Newall Welfare Trust Limited. This leaves a balance of £197,360, which with the balance brought forward from last year gives a total of £1,690,840 to be carried forward. The Capital Issues Committee has approved capitalisation of sufficient of the company's reserves to permit issue to stockholders of one new ordinary stock unit of £1 for each such unit now in issue.

**Record Order Book for Heenan & Froude Limited.**—Presiding at the recent annual general meeting in the absence of Mr. Alan P. Good, the Chairman, Sir Richard Pease, said that group net profits before taxation stood at £394,003, compared with £370,851

## OFFICIAL NOTICES

CROWN AGENTS FOR THE COLONIES

**ASSISTANT TRAFFIC SUPERINTENDENT.** Railway Department, required for the Gold Coast Local Civil Service for two tours each of 18-24 months in the first instance. Non-pensionable. Salary according to age and war service in the scale £1,330 rising to £1,680 a year. Outfit allowance £60. Gratuity £37 10s. for each 3 months' service. Free passages. Liberal leave on full salary. Candidates must have a thorough knowledge of electric train staff working, pilot working, double line block system etc., centralised Train Control system, the working of shunting yards, train running and traffic statistics. They should also have experience of all sections of passenger and goods station working including accounts, rates and fares and claims. Experience of Railway operation in docks and harbours and a knowledge of Morse telegraphy is desirable. Apply at once by letter, stating age, full names in block letters, and full names in block letters, and full particulars of qualifications and experience, and mentioning this paper to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting on letter M.33427.E. The Crown Agents must undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

COUNTY BOROUGH OF SOUTHBEND-ON-SEA

**ASSISTANT ELECTRICAL & MECHANICAL ENGINEER — PIER AND FORESHORE DEPARTMENT.** Applications are invited for this appointment. Age limit 40 years (45 if already in Local Government Superannuation Scheme). Salary: A.P.T. Grade II of the National Scales (£495 x £15 — £540 p.a.). The appointment is terminable by one month's notice on either side. Applicants should have served either an Electrical or Mechanical Engineering Apprenticeship, hold good technical qualifications, and have had general experience subsequently to apprenticeship, and be capable of undertaking the supervision (under the Chief Electrical & Mechanical Engineer) of the installation and maintenance of plant of the Department, which includes Traction System, maintenance of both Rolling Stock & Permanent Way, Electrode Boilers, Water Filtration Plant, Cranes, Pumps, Diesel Electric Dredger, Large Electrical Installation & Water & Gas Services of the Department. Medical Examination. Superannuation deductions. Uniform provided. Application, stating age, full particulars of training and experience accompanied by three testimonials, must reach the PIERMASTER & FORESHORE MANAGER, Pier Hill Buildings, Southend-on-Sea, in a plain envelope endorsed "Assistant Engineer" not later than 9 a.m. Monday, February 16, 1953.—ARCHIBALD GLEN, Town Clerk.

**ASSISTANT TRANSPORT MANAGER** required for Iron and Steel Works, North East District, age 35-40. Must have knowledge of Rail, Road, and Shipping Regulations. Railway experience essential. Apply giving qualifications and salary required.—Box 707, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**N.E.R. HISTORY.**—Twenty-Five Years of the North Eastern Railway 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employer, is exempted from the provisions of the Notification of Vacancies Order, 1952.

**EAST MIDLANDS** firm of Engineers require a Draughtsman with Workshops experience. Knowledge of railway permanent-way preferably but not essential. Five-day week, superannuation scheme, canteen. Reply stating age, experience, salary, etc., in confidence to Box 701, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**TALYLLYN RAILWAY COMPANY, Towyn, Merioneth.** Applications are invited for the post of General Manager for the Summer Season of 1953. Apply in first instance to the SECRETARY, 344, Lordswood Road, Harborne, Birmingham 17, stating experience, qualifications and salary required.

**CHIEF INSPECTOR.** A Chief Inspector is required to take charge of a Works Inspection Department concerned with all parts of locomotives and the inspection and testing of locomotives and boilers at various stages of construction. The appointment would be to the Senior Staff of the Company and would carry a pension under The United Steel Companies' Scheme. A full craft training and previous experience of locomotive building is essential. Application forms may be had by writing to the GENERAL MANAGER, YORKSHIRE ENGINE COMPANY LIMITED, Meadow Hall Works, Wincobank, Sheffield.

**BOUND VOLUMES.**—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

**THE DIRECTOR-GENERAL.** India Store Department, 32/44 Edgware Road, London, W.2, invites tenders for the supply of wheels and axles. 352 pairs for 6-ton axle bogie carriage. Narrow gauge. 224 pairs for 8-ton axle bogie wagon. Narrow gauge. Forms of tender which are returnable on Friday, February 13, 1953, may be purchased from this office upon payment of a fee of 10s. Reference S.4999/52 must be quoted in all applications.

**QUALIFIED locomotive draughtsmen** required for Yorkshire Engine Company Limited, Meadow Hall Works, Sheffield 9. Staff appointment with pension. Application forms may be had by writing to the GENERAL MANAGER.

the previous year, and after providing for taxation, which took over 63 per cent of net profits, there was left £144,515 against £140,943. The balance of orders on the books at the close of the year was well over £5,000,000, yet another record, in a year when the sellers' markets which had dominated world trade for a long period had in many cases turned in favour of buyers. The company had celebrated its fiftieth anniversary as an incorporated company on March 2, 1952, and the occasion was marked by the distribution of a jubilee bonus of 2½ per cent on the Ordinary shares, with a brochure setting out the history and activities of each of the group companies. Among subsidiaries, he added, the new building work and re-equipment of W. G. Bagnall Limited at the Stafford works continued during the year. Associated Locomotive Equipment Limited had had a satisfactory year. The report and accounts were adopted.

**American Car and Foundry Company.**—Sales of products and services of the American Car and Foundry Company for the six months ended October 31, 1952, amounted to \$106,829,146. Profit before provision for Federal income taxes was \$8,060,590. After taxation the net profit was \$3,887,397, or \$4.36 per common share after preferred dividend requirements. Total unfilled orders on November 25, 1952, amounted to approximately \$378 million, of which \$125 million represented regular products.

**John I. Thornycroft Results.**—The report for the year ended July 31, 1952, of John I. Thornycroft & Co. Ltd., shows that the profit was £227,049, which with balance brought forward gives £471,162 for distribution. Interim dividends were paid in June on the 3 per cent cumulative preference shares and 3½ per cent participating preferred ordinary and of 5 per cent on the ordinary shares, leaving a balance of £447,340. The directors recommended payment of final dividends, less tax, of 3 per cent on the cumulative preference, 5½

per cent on the participating preferred ordinary, and 10 per cent on the ordinary shares. After transfer to general reserve and special provisions accounts and provision for an additional amount of profits tax on interim and final dividends, the balance carried forward in parent and subsidiary companies is £251,195. The annual meeting is to be held on November 26.

**Institute of Transport, Metropolitan Section.**—At a meeting of the Institute of Transport, Metropolitan Section, to be held at 80, Portland Place, W.1, at 5.30 for 6 p.m., on February 2, there will be a symposium on British Railways by Mr. A. E. Hammett (Commercial) and Mr. S. W. Smart (Operating).

**Cleckheaton Spen Station Closed for Passengers.**—The passenger train service at Cleckheaton Spen Station, N.E. Region, was withdrawn on January 5. Facilities have been retained for dealing with special excursion trains. An alternative rail service for passengers to Huddersfield is available at Cleckheaton Central, and buses to Leeds call at a stop about 200 yd. from the station. Parcels traffic is concentrated at Cleckheaton Central Station, and live-stock in vehicles is dealt with at Liversedge Central.

**Sale of Confectionery in Station Slot Machines.**—The British Automatic Co Ltd. points out that statements in the Press regarding the possibility of derationing of confectionery taking place during this year may have given the impression that the automatic vending machines on Railway Executive main-line stations will quickly be put back into service selling chocolate and sweets. The company, owner of the majority of the machines on these railway stations, wishes to make it known that the end of confectionery and sweets rationing will not mean the immediate resumption of sales through the machines, many of which will, in any case, shortly be removed from the stations by

mutual arrangement with the Railway Executive. The date of replacement of the machines and the resumption of trading through them will depend on the establishment of the special conditions necessary for the conduct of this type of trading.

**Fellowships in Management Accountancy.**—Examinations for Fellowships in Management Accountancy will be held by the Institute of Costs & Works Accountants on December 7, 8 and 9, 1953. Applications to sit are required to be submitted at least three months before the first day of the examination. The Fellowship will be the highest qualification obtainable in management accountancy in all its aspects. The institute's address is 63, Portland Place, London, W.1. A booklet is available giving the syllabus of the examination and the qualifications required by candidates.

**Holiday Trends in 1952.**—A report on holidays in 1952 prepared by the British Travel & Holidays Association shows that most resorts had their best season, in terms of numbers of visitors, since the war, although the increase in holiday trade was comparatively small and involved probably only 1 per cent of the population. There was a worsening of the holiday peak problem, most of the four million workers who received an additional week's holiday with pay seeming to prefer the period just before or just after the August bank holiday. A little under two-thirds of all holidaymakers went to the seaside.

**East Yorkshire Motor Services Limited.**—Mr. J. S. Wills, Chairman of East Yorkshire Motor Services Limited, said at the company's annual meeting on December 16 that in the area they served the maximum possible co-ordination of passenger services already existed. So far as the railways were concerned, the Standing Joint Committee with the Railway Executive continued to function harmoniously and the co-operation and co-ordination between

rail and road could not be greater or more cordial if both were under the same ownership. The company carried nearly 34 million passengers last year, or  $\frac{1}{4}$  million more than the record figure of the previous year. Mileage was slightly up at 823,750.

**Butler Machine Tool Co. Ltd.**—At a meeting of the Butler Machine Tool Co. Ltd. held at Halifax on November 25, the directors resolved that a dividend on the 5 per cent cumulative preference shares for the six months to December 31, 1952, be paid less income tax at 9s. 6d. in the £. Dividend warrants in respect of this dividend will be posted on December 30 and the dividend is payable on December 31.

### Forthcoming Meetings

- January 19 (Mon.).—Institute of Transport, York Graduate and Student Society, at the Railway Offices, York, at 7.30 p.m. "Outline of Railway Cartage Organisation," by Mr. J. A. Hall (Graduate).
- January 20 (Tue.).—Institute of Transport, Birmingham Graduate and Student Society, at the Chamber of Commerce, Birmingham, at 6.45 p.m. "The Latest Developments in Mechanical Handling in Railway Transport," by Mr. J. H. Vine, British Railways, Western Region.
- January 20 (Tue.).—Institute of Transport, Humberside Section, at the Chamber of Commerce & Shipping, Hull, at 7.30 p.m. "Railway Operating Control System," by Mr. A. Forster.
- January 20 (Tue.).—Institute of Transport, North Western Section, at the Cafe Royal, Manchester, at 6.45 p.m. for 7.15 p.m. Annual Dinner and visit of President.
- January 20 (Tue.).—Society of Chemical Industry, in the Chemical Society's Rooms, Burlington House, Piccadilly, W.1, at 6.30 p.m. Lecture on "The Electrochemical Behaviour of Metals and Corrosion," by Dr. M. Pourbaix.
- January 21 (Wed.).—Permanent Way Institution, London Section, at Railway Executive Headquarters, 222, Marylebone Road, London, N.W.1, at 6.30 p.m. Paper illustrated with lantern slides "Architecture and the Railways" by Mr. H. E. B. Cavanagh.
- January 22 (Thu.).—Institute of Welding, in the Fyvie Hall, The Polytechnic, Regent Street, W.1, at 7.30 p.m. Paper on "The Joining of Aluminium and Its Alloys," by Mr. W. V. Binstead.
- January 22 (Thu.).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas' Street, S.E.1, at 5.45 for 6.0 p.m. A display of Transport Films.
- January 23 (Fri.).—Institution of Mechanical Engineers, at Storey's Gate, St. James's Park, S.W.1, at 5.30 p.m. Paper on "Design of Precision Grinding Machines," by Mr. G. H. Ashridge.
- January 26 (Mon.).—Timber Development Association Limited, in the Assembly Hall at the South-West Essex Technical College, Forest Road, Walthamstow, at 7.0 p.m. A United Nations film "Green Gold," to be followed at 7.30 p.m. by a Timber Brains Trust.
- January 27 (Tue.).—Institution of Civil Engineers, at Great George Street, Westminster, S.W.1, at 5.30 p.m. Paper on "Design of Structures in

Relation to Maintenance and Inspection," by Mr. F. Turton and Mr. N. S. Cox.

January 28 (Wed.).—Railway Students' Association, at the London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6.15 p.m. Paper on "British Railways and the Coal Industry," by Mr. W. L. Kelly.

January 29 (Thu.).—British Railways, Western Region, Lecture & Debating Society, in the Staff Dining Club, Bishop's Bridge Road, Paddington, W.1, at 5.45 p.m. Paper on "Steel Company of Wales: Developments at Port Talbot," by Mr. W. F. Cartwright.

January 31 (Sat.).—Permanent Way Institution, at the Railway Executive

Headquarters, 222, Marylebone Road, N.W.1, at 5.45 p.m. for 6.15 p.m. Conversazione. Tickets 7s. 6d. each.

February 2 (Mon.).—Society of Engineers, in the Apartments of the Geological Society, Burlington House, W.1, at 5.30 p.m. Presidential Address.

February 2 (Mon.).—Institute of Transport, at 80, Portland Place, W.1, at 5.30 p.m. for 6 p.m. Symposium on British Railways—"Commercial," by Mr. A. E. Hammett, and "Operating," by Mr. S. W. Smart.

February 2 (Mon.).—Historical Model Railway Society, at the Headquarters of the Stephenson Locomotive Society, 32, Russell Road, W.14, at 7.0 p.m. Paper on "The Railway Cross-Channel Services," by Mr. C. Grassemann.

### Railway Stock Market

Largely because of new account factors, stock markets have been more active and values, particularly in the industrial and gilt-edged sections, moved in favour of holders. With allotments scaled down drastically because of the very heavy oversubscription, much application money tied up in the Anglo-Iranian debenture issue has been released. There are expectations that further important new issues are likely to make their appearance over the next few weeks. If there is a big rush of new issues they would compete strongly with existing securities and a further rally in markets would probably be postponed. There is, however, a prevailing feeling that investment business will be on a bigger scale this year than in 1952, based on the view that despite the disappointing revenue figures to date, a reduction in taxation may come along with the Budget; the assumption is that this may be made possible by economies and cuts in subsidies.

No outstanding features developed in foreign rails, though business was on a slightly larger scale than last week. There has been a little selling of United of Havana stocks in their new form. The market is doubtful if there will be early news of a take-over offer, but it is assumed that if a deal is arranged and agreed by the company it will be on a fair and equitable basis and this would justify higher prices for the stocks. At the time of going to press, the 4 per cent "B" stock has eased to 61 and the 5 per cent second income stock to 19. The "A" stock was 67 and the consolidated stock 3. Manila Railway issues have also been quiet and inclined to ease, awaiting any further news from Manila of the proposed selling of hotels which would provide money to clear off the large outstanding interest arrears on the Manila Railroad bonds held by the Manila Railway Company. The Manila Railway's debentures and shares, it is believed in the market, may offer the biggest scope for possible appreciation this year among foreign railway securities. "A" debentures have changed hands around 82, and the "B" debentures around 72, while the preference shares were 9s. 3d. and the 1s. ordinary shares 3s. 6d.

Chilian Northern 5 per cent debentures marked 27, and Dorada ordinary stock around 58, Guayaquil & Quito bonds 36½, and Paraguay Central 6 per cent debentures 15.

There has been further evidence that there are some speculators willing to buy the old Russian railway bonds. Armavir-

Touapse have marked 6s. 3d., Black Sea-Kuban 5s., and Troitzk 6s. 3d. There has been more talk that pre-1917 Russian assets in this country might be sold and distributed, but even if this were done, it seems doubtful if there would be anything left for holders of the railway bonds after other creditors had some payment in respect of claims. Russian bonds must be regarded as a pure gamble. It is always possible that a buyer would find that the market might dry up altogether and when he wished to sell it might be a matter of negotiation.

Antofagasta ordinary stock was 11½ and the preference 51½. Costa Rica ordinary stock changed hands around 9½ and the first debentures around 58.

San Paulo 6s. 8d. units were 7s. 3d., Taltal shares 15s. and Nitrate Rails shares 20s. 6d. Mexican Central "A" debentures were 66. Nyasaland Railways 3½ per cent debentures kept at 72, and Bansi Light Railway remained more active around 118 on break-up value estimates, while Emu Bay 4½ per cent debentures have marked 54.

Algoma Central Hudson Bay 5 per cent debentures changed hands around \$250 and Ontario and Quebec 5 per cent debentures at £98. Canadian Pacifics were \$59½xd., the 4 per cent preference stock £63½ and the 4 per cent debentures £79½. White Pass & Yukon common shares have been less active and quoted at \$17½ with the 5 per cent convertible debentures at £66.

There was more business in engineering shares, with Vickers at 45s. 3d.; but John Brown eased to 44s. 6d. Guest Keen strengthened to 51s. 3d., Murex to 55s. 3d., and Ransome & Marles to 24s., while T. W. Ward were 71s. 3d., Cammell Laird 5s. shares 11s. 1½d., and Ruston & Hornsby higher at 40s.

Among locomotive builders and engineers, Beyer Peacock were 33s. 6d. with Hurst Nelson 43s. 6d. at Glasgow and North British Locomotive 14s. 1½d. Birmingham Carriage were 32s. 9d., Vulcan Foundry 22s. 9d., Gloucester Wagon 10s. shares 12s., Wagon Repairs 5s. shares 12s. 9xd. and Charles Roberts 5s. shares 20s. 3d.

The trend in markets is to favour shares of companies whose dividends last year were covered by a substantial margin, and which appear to have reasonable prospects of maintaining their dividends this year. It seems likely, therefore, that shares of locomotive builders and engineers will attract rather more attention.